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## THE ADVANCING CURABILITY POTENTIAL BY SURGERY OF THE CHEST

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Lester Ward writes, "The whole of medicine and surgery is a violent interference with biological competition—Man repudiates nature and applies art. The constant tendency is to render everything more artificial, which means more and more perfect." No field of surgery has seen more rapid progress than has the treatment of chest conditions. It is the family physician who first meets these problems. He is in a position to advise treatment at a time when it is feasible to perform curative surgery in what may otherwise be an incurable condition. A frequent evaluation of the possibilities is therefore obligatory. The average length of time between onset of the first symptoms and surgical consultation in cases of carcinoma of the lung is twelve months. This is not altogether due to the slowness of the patient to seek medical advice but frequently because the first physician seeing the patient adopts a "wait and see" attitude. All of us have been guilty of this policy in the borderline case where a clear-cut diagnosis may be difficult. The same factor is found in the more chronic lesions and it is good to take stock of the advances that are being made. Prolonged trials of antibiotic therapy must not be permitted to take the place of diagnostic procedures which could yield an earlier diagnosis.

The physician must properly evaluate the general considerations affecting the surgical risk. Where surgery is imperative as in carcinoma, exploration may be done under conditions which would make it inadvisable if the lesion were a small round lung tumor diagnosed as probably benign cyst. Cardiovascular disease frequently will be the primary contraindication for surgery

which would be imperative otherwise. Nevertheless, the cardiovascular factors must be evaluated chiefly on the functional capacity of the heart rather than on its anatomical or pathological changes. In the presence of cardiac decompensation with edema, no procedure that would not immediately increase the cardiac output or the ventilatory capacity of the lungs could be considered.

However, many cases of constrictive pericarditis operated upon have some degree of heart failure. Giant cysts of the lung may be removed with the expectation of immediately increasing the ventilatory capacity of the lung. In general, the margin of cardiac reserve should be greater for thoracotomy than for surgery in other parts of the body. This is true partly because of the time consumed by the procedure but chiefly because of the pressure changes on the cardiac chambers involved when open pneumothorax is produced. Blalock<sup>1</sup> found in animals that the cardiac output was increased during general surgical procedure 76%. Others have shown that the cardiac output immediately following surgery, while the patient is still asleep, is greatly reduced and does not return to normal for several days. Snyder<sup>2</sup> measured this and reported an average of minus 41%. Following thoractomy this may be more pronounced.

Most important in determining the cardiac reserve in the surgical patient is his exercise tolerance. What are the activities which he can carry on without great dyspnea or fatigue? A rapid heart is frequently a sign of poor cardiac output and lowered cardiac reserve. If the contemplated procedure will reduce the pulmonary ventilation, greater cardiac reserve is necessary.

<sup>1</sup>Read before the Regional Meeting of the Am. Col. Phys. Oct. 22, 1949.

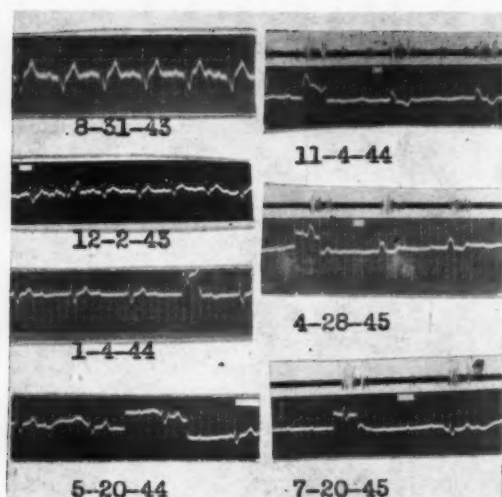


Fig. 1. N. K. Lead I of serial tracings from 1943 to 7-20-45. The gradual development of Stokes-Adams syndrome with complete disassociation of the auricular (104) and ventricular (22) contractions. Sound tracings demonstrate prolonged systolic murmur. Three-stage thoracoplasty successfully carried out in 1948.

The following case (Fig. 1) is illustrative of the fact that serious degrees of myocardial damage may not preclude surgical approach to the chest problem.

**Case N. K.** This patient was in a Sanatorium for the treatment of tuberculosis from December, 1936 to September, 1938. Pneumoperitoneum was administered and he was considered to have made excellent progress. He was discharged as apparently arrested. He was followed in Phoenix from 1938 to 1943, during which time the pneumoperitoneum was discontinued, his sputum was negative but the X-rays of the left apex showed a moth-eaten appearance with report of possible outline of small cavities. He had no sputum most of the time, however, and he felt well and continued to work.

The first available electrocardiograph tracing was made on August 31, 1943, when the patient was 40 years of age. (Figure 1). At this time we show a bundle branch block with a propagation time of 0.12 and an a.v. block with a conduction time of .22. The second tracing shows a slowing of the heart beat with a rate of 54 and 2 to 1 heart block. In August 1944 the ventricular rate is 40 and a complete block persists. The loud systolic murmur is well demonstrated on this sound tracing. In November 1944 the heart block was changed to a ventricular rate of 27 and an auricular rate of 90. In April 1945 we see an increase in the width of the QRS now measuring .16. In July of 1945 the ventricular

rate was 22 against an auricular rate of 100. The patient continued working and remained fairly comfortable, using large doses of ephedrine when the ventricular rate fell below 30. In 1948 a large cavity was noted at the left apex and a 6-rib three stage thoracoplasty was performed by Dr. Melick under general anesthesia without complication. The case is included in this report because of the unusual nature of the cardiac pathology and the demonstration of the evolution of complete heart block.

Insofar as the thoracotomy may be elective, we hesitate to perform major surgery in the presence of psychopathic tendencies. The development of psychic reactions may interfere seriously with carrying out follow-up procedures such as bronchoscopy or empyema drainage.

In open thoracotomy it is essential that the chest wall heal firmly if complete re-expansion of a lung is to be obtained and if prevention of intrathoracic infection is to be accomplished. Nutritional factors are particularly important and must be reckoned in the surgical risk in any individual case. For example, out of 14 patients subjected to pleural decortication, one had late breaking down of the chest wall incision, defeating the objective of the procedure. There was a dehiscence of the chest wound occurring twenty days after surgery attributed to poor nutrition. Another had a similar complication, with partial failure for the same cause.

The chronological age of the patient is less often a factor in deciding whether malignancy should be attacked than the physiological age, and should be estimated by careful physical examination. The chronological plus the physiological age determines also the degree or extent of the resection. The oldest patient in series was a 74 year old man who had a lobectomy for carcinoma. There were no complications and an apparently good result was obtained. He is now months post-operative. Pneumonectomy when feasible offers a better chance of cure of carcinoma. Lobectomy was elected in this patient because of his age and the presence of considerable emphysema.

We must attempt to diagnose carcinoma of the lung earlier. Routine fluoroscopy on annual health examinations and survey X-rays will help. Hospital patients should have chest X-rays on admission. Keener suspicion of early symptoms and greater readiness to explore the chest are the key points. Sputum examination for malignancy

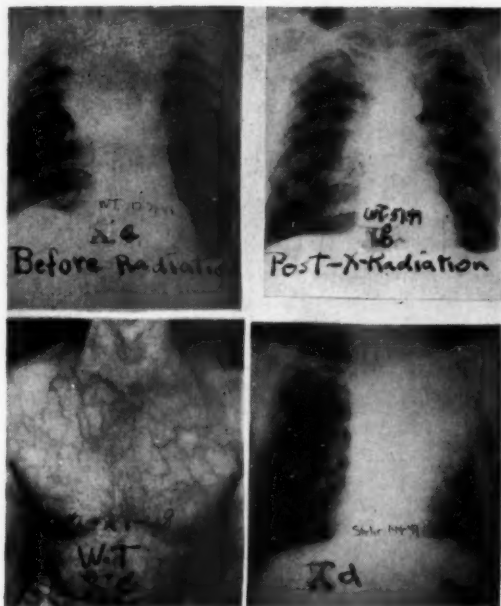


Fig. 2. (a) Extensive carcinoma producing superior venacaval obstruction, (b) after X-radiation obstruction temporarily relieved. (c) Showing collateral circulation by infra-red photograph. (d) Another case of inoperable carcinoma producing left vocal cord and diaphragm paralysis.

nant cells should be more widely employed. Bronchoscopic removal of bronchial secretions for cytologic studies has increased the diagnostic value of bronchoscopy from 50% to more than 80%. "False positives" occur in occasional cases of squamous metaplasia, so that the exploratory thoracotomy must include frozen section biopsy in any questionable case.

Precluding surgery are the signs of mediastinal involvement such as superior venacaval obstruction as shown in the accompanying roentgenograms and infrared photograph. Note the extreme dilatation of jugular veins and the extensive collateral circulation developed over the thorax. (Fig. 2. a-b-c.) These are usually signs of inoperability.

One cannot judge operability by the apparently confluent solidification of a lobe, which may be due to atelectasis from bronchial obstruction rather than carcinoma extension. Extensive pulmonary atelectases may be the result of a small resectable carcinoma. Fluid in the pleural cavity, especially when bloody, usually means incurable metastases. However, an exploratory should be done if tumor cells cannot be found in the fluid.

Most round tumors of the chest should be removed on suspicion, unless there are physical contraindications. Even the neurofibroma is po-

tentially malignant. Kent et al<sup>3</sup> reported 41% malignant, some with metastases. Dermoids undergo malignant change in a small number of cases. Cysts may be silent for years, then become infected or grow and cause pressure symptoms.



Fig. 3. (a) Planigraph showing cyst in mid lung field on left in an 8 year old girl. (b) 32 year old female with a cyst in lower right pericardial location.

(Fig. 3) G. G. was a little girl of 8 years, whose pathology was found on routine X-ray survey. Upon exploration the cyst was found to occupy most of the left upper lobe, requiring lobectomy. L. M. F. (Figure 3-B) was a 33 year old woman with only a chronic cough. The lesion was discovered on routine examination and found on removal to be an endothelial lined pulmonary cyst.

Mild bronchiectasis, even well localized, may be tolerated rather than resected in patients past middle age. Individual ligation technique brings cure or much relief to many patients who would have been rejected as hopeless a short time ago. Parts of all five lobes may now be resected. Removal of five or six of the 9 segments on one side may leave most of the functioning part of that lung intact.

Figure 4 illustrates the condition for which the procedure is used. This patient had been rejected for resection in the past because of very extensive disease.

*Case II R.M., female, aged 32* had been working as a clerk at the airport. Her pulse rate was 76, blood pressure 120/80, heart sounds were normal and breath holding time was 35 seconds. This indicated good vital capacity considering the extensive saccular bronchiectasis. The operation is technically possible because the blood supply to the lower four segments and the bronchi below the opening of the dorsal segment bronchus of the lower lobe is anatomically a separate unit. The resection proceeded in a retrograde manner without undue blood loss, contamination or air leak. The dorsal lobule of the lower lobe which was not resected was twice the

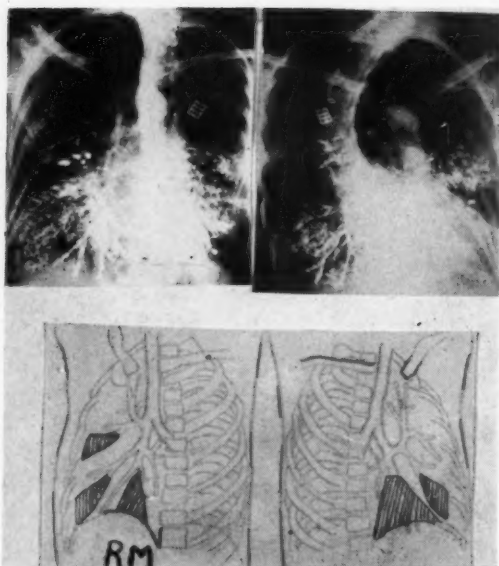


Fig. 4. Extensive bronchiectasis involving segments of all five lobes. Diagram shows segments affected. Segmental resection of left side resulted in marked improvement with no reduction in vital capacity.

volume of all the four diseased lower lobe segments together. Little functioning lung tissue was found supplied by these four segmental bronchi, but the dorsal lobule appeared enlarged. The removal of the lower branches and the small lateral lingular branch of the upper lobe in the same manner seemed to reduce the functioning volume of the left lung very little. The bronchi were kept clear following surgery by bronchoscopy and aspirations. The patient's temperature was never above 99.2°. She returned to her regular work five weeks after surgery, much improved. The amount of sputum is greatly reduced, and the breath holding time three months following operation was 36 seconds.

Chronic lung abscess is now treated by pulmonary resection when it has failed to respond to the presently known antimicrobial agents. Many cases which have come to resection following drainage operations have responded to resection satisfactorily. Even though well localized and in a location that is easily accessible to open drainage, the treatment of choice may be resection. The putrid abscess, the granuloma of coccidioidomycosis when serious symptoms are present, and the tuberculoma, if large and of relatively recent origin, may all be subject to resection. Pulmonary actinomycosis<sup>4</sup> and histoplasmosis<sup>5</sup> may now be added to the list when the lesions are sufficiently localized.

A 50 year old male in good general condition was found on exploration for possible carcinoma to have a granulomatous lesion consolidating the left upper lobe. At operation the frozen section was diagnosed an inflammatory condition and a lobectomy was done. The sections revealed actinomycosis. 20,000,000 units of penicillin in 6 weeks followed, and the patient has remained well seven months. In view of the solid total involvement of the lobe it is doubtful whether medical treatment alone would have been effective.

In 1947 a pneumonectomy was performed on a patient in whom a diagnosis of possible carcinoma had been made. Grossly the upper lobe and part of the middle and lower lobes were indurated, and it was felt that a palliative resection was indicated. On microscopic study this proved to be an actinomycosis infection. Complete thoracoplasty and a plastic operation on the bronchus has not entirely closed the broncho-cutaneous fistula, and the patient's condition at this time is poor although there is no apparent involvement of the remaining lung.

Antibiotic therapy in pulmonary actinomycosis infections is encouraging, but resections of accessible foci is still considered essential. At the present time it seems feasible to remove localized large pulmonary foci when the age and general condition of the patient make the operation relatively safe. Pencillin in massive doses and blood transfusions have been successful and, combined with resection surgery, offer the best chance of cure of otherwise fatal disease. To remove the major portion of the involved area together with what may be the primary focus, leaves less infection to be taken care of by antimicrobial agents.

## SUMMARY

A few pulmonary problems are presented to demonstrate the place of surgical aid in their treatment. Changing approaches to the treatment of pulmonary infections, bronchiectases, and tumors of the lung are discussed.

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## PLASTIC REPAIR AND MANAGEMENT OF WOUNDS, BURNS AND ULCERS\*\*

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Early reparative surgery aids in the prevention of disability and the restoration of function. Supportive measures such as fluids, electrolytes, blood, antibiotics, chemotherapy, proteins, etc., must be instituted where necessary. An evaluation of the defect and a plan for surgery must be patterned. Such a plan must include the primary treatment and dovetail into secondary repair where required. (FIG. 4)

Gentleness with tissue, a respect for circulation, an eye for hemostasis, the hoarding of all attached tissue fragments until they are thoroughly proved to be useless before discarding, and being ever ready and present to deal with any complications as they may arise are prerequisites in plastic surgery.

The individual case presents a specific problem demanding that treatment and procedures be modified to adjust themselves to the requirements. It may be necessary to delay intervention for cosmetic improvement in order to save tissue and at some later date, after the dividends of time have accrued, revisions may be instituted.

### WOUNDS

*Immediate care:* The creation of a clean surgical theatre is important. The adjacent area and the wound should be cleansed and copiously washed with saline. Meticulous surgical asepsis is in order.

Tetanus and gas anti-toxin are given along with specific antibiotics and such supportive treatment as is required.

Suturing should be done without tension on the tissues. Subcutaneous sutures of silk or cat-gut may be employed to gain approximation. Fine black silk, interrupted, everting sutures or a running subcuticular suture is used in the skin. Care must be taken to avoid large stitches across the skin which will result in cross marks that may necessitate wide removal for secondary revision.

Viable tissue should not be trimmed or heedlessly sacrificed. Secondary repair is always kept

in mind and such tags or flaps may be indispensable for an ideal final result.

Bleeding is carefully controlled. A resultant

(A)



(B)



FIGURE IV

Burned face: (A) Deep third degree lye burns of the face and eyes with complete destruction of the tissues. (B) Depicting early skin grafting to cover the denuded areas over the whole face. Further revision has been done and more will be carried out. The eyelids have been reconstructed, mucous membrane grafts to the eyeballs; several "Z" plasty operations.

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hematoma is an excellent breeding ground for bacteria and may also cause the loss of a partially evulsed flap.

The dressing should be done as carefully as the surgery. Vaseline or parresine gauze is laid over the wound and this overlaid with gauze flats. Where necessary, mechanic's waste is employed over this for pressure. Adhesive tape, elastoplast or stockinette bandage, depending upon the site, is used for immobilization and pressure. If there is a large wound adjacent to a joint, the latter is immobilized in order to restrict movement and relax tension over the wound.

Stitches are removed early in order to avoid suture marks, and adhesive bridges are used over the wound for a period of two to four weeks. The latter aids in preventing spread and also tends to flatten the scar.

Where there is suspicion of keloid formation, early X-ray treatment may be introduced.

**Secondary Repair:** A large wound with loss of tissue may result in either a contracted or unattractive scar. Revision is employed for both functional and cosmetic improvement.

In removing a scar, the lines of incision are outlined with Gentian Violet 3% U.S.P. Usually this in the form of an ellipse or half moon, and when possible should follow Langer's lines. Such a method usually results in a line that causes less distortion and blends with the skin.

The scalpel is held perpendicular to the skin so that a straight rather than a beveled edge is created. Again, meticulous hemostasis is important. Careful undermining of each side is carried at least twice the width of the resulting defect thus relieving the tension for approximation. The subcutaneous tissue is sutured with fine silk or catgut and the sutures so placed that the skin edges are everted. The skin is united with fine black silk interrupted, everting mattress sutures.

The surgical site is dressed as in the initial repair. Immobilization results in a finer scar.

**Loss of Tissue:** Wounds may result in loss of tissue causing a large deforming scar or a raw granulating area, requiring coverage both for functional and cosmetic improvement.

When possible local tissue is used for repair. Its close simulation of color and character coupled with the relative ease of reconstruction make it the most feasible. Adjacent relaxing incisions allowing a flap to be shifted onto a defect are often applicable. The resultant defect creat-

ed in forming the flap may be closed directly or if necessary it can be grafted.

In some cases, contractures may be overcome by a "Z" plasty operation, where the flaps of the "Z" are interchanged thus altering the line of tension.

Should local tissue prove ineffective in the plan, then tissue may be brought from some other part of the body in the form of either free skin or a pedicle flap. Composite grafts taken from the ear are applicable in some cases for transfer onto a defect.

Skin grafts for a defect above the clavicle should be donated from the same locality. The supra-clavicular space, behind the ear, and the upper eyelid are the usual donor sites. This axiom should be followed because skin on the face possesses a peculiar reddish tinge indigenous to the area and when substitution is necessary, it should be simulated.

For other parts of the body, the thigh, back, flanks, chest and abdomen can donate skin. The thinner the skin, the easier the take, but it also contracts more and there is greater opportunity for color change. The thicker the graft, the opposite is usually true. Full thickness grafts are mainly reserved for areas that are closed and clean and are to be substituted for a healed scar.

In some instances a pedicle, including skin and subcutaneous fat may be used. The pedicle may be simple or compound (lined with skin or mucous membrane). It can be transferred to its



FIGURE V

Evulsion of skin and muscles of the left leg: (A) The denuded area was primarily skin grafted. A jump pedicle from the abdomen was carried down to the leg to cover the exposed tibia. Patient is now returned to normal function.

new residence by employing the wrist, hand, etc., as a carrier. (FIG. 5) Primarily, the pedicle is raised (and if necessary outlined and delayed) then attached to the wrist. At a later date, usually about three weeks, the pedicle is severed from its original abode and transferred onto the defect. Again, in approximately three weeks, it is detached from the carrier and completely approximated to the new site. A number of techniques have been introduced to gauge the time necessary between stages (atropine, flourescine, temperature tests, etc.).

At some later date, the transferred pedicle may be raised separately on each side and thinned so that it more closely resembles the circuitous tissues.

A pedicle may be tubed and then migrated, leaving one end attached at all times. A direct contra-lateral flap can be used, as from the thigh to the opposite heel, the calf to the opposite lower leg, a biceps or abdominal flap to the hand.

Bone from the ilium or tibia, cartilage from the ribs, ears or nose and necrocartilage can be employed for struts or filling material. Again, their choice will depend upon the defect.

Each procedure has a particular use and its choice will be dependent upon the specific problem and the judgment of the surgeon. Exhaustive pre-operative planning cannot be over emphasized.

(A)

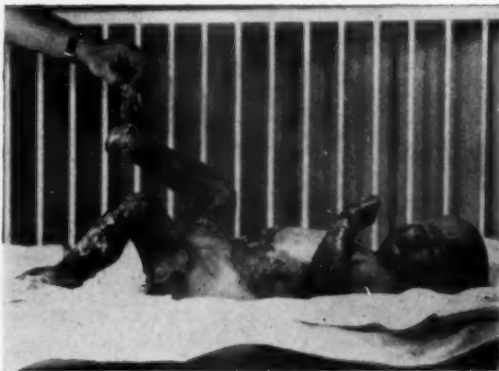


FIGURE VI

Third degree burns of the whole body: (A) Deep burns, with eschar circling both legs, of the abdomen, chest, arms, hands and face. Baby received forty transfusions of whole blood. (B) Split skin grafts taken from all available sites. Some donor areas were used several times after the skin was regenerated. Child is now walking. X-Ray is helpful over the heavy scars. Secondary revision has been done to overcome an ectropion of the mouth. Further revision will be done after time is allowed to do its work.

(B)



### BURNS

Initially the burned patient must be saved. Shock and infection are attacked. Fluids, gauged by the intake and output; blood, judged by the hemocrit readings are the most important immediate adjuncts. Pressure dressings, all modes of supportive treatment and early skin grafting follow.

First and second degree burns (partial destruction of the skin) usually epithelialize and cover. Third degree burns (total destruction of the skin) though they may cover by scar and contracture, usually require skin grafting. (FIG. 6).

The burned patient is taken directly to the operating room and under complete aseptic technic, the burned sites are cleansed and washed with suds of white soap. A pressure dressing is applied: vaseline gauze, gauze flats, mechanic's waste and stockinette bandage.

At the first re-dressing, four to five days later, the patient is taken to surgery, the dressings are removed, the burned sites thoroughly washed and irrigated with saline. All dead tissue is removed. The burn is evaluated. In some cases, grafting may be done at this time, in others it must be delayed.

When grafting, as much skin as possible is cut from all available donor sites (usually .008-.010 inches thick). The grafts are sutured where required, overlaid with parresine mesh, gauze flats, mechanic's waste and stockinette bandage is used for pressure. Sometimes, especially in children, a light cast is applied over this for immobilization. If the burn appears especially dirty, wet dressings may be used by inserting numerous catheters into the pressure dressing and irrigating through these every two hours around the clock. (FIG. 3).

When the patient is going downhill and does not have sufficient skin of his own to use for grafts, then donors from the immediate family should be used for homogenous grafting. These grafts, though they disappear (unless utilized between identical twins) in three to nine weeks, serve admirably as a skin dressing until the patient is in condition to contribute his own skin.

Usually the patient is grafted in three to four weeks following a severe burn. Baths are most



(A)



(B)

FIGURE III

Circular burn of left leg and part of the right: (A) A third degree burn after first dressing in 5½ year old boy. Sloughing surface debris and allowed to granulate before grafting. All denuded surfaces first covered with homografts from mother because child was toxic and going downhill. Homographs lasted four weeks, patient gained ten pounds and had normal temperature. (B) Split skin grafts from his own back, abdomen, chest and flanks applied, with restoration of function.

helpful in preparing the granulating wounds for grafting. Good, healthy, clean, firm, red granulation tissue insures the skin take.

Following surgery, the grafts are subsequently dressed on the fifth or sixth day. The sites are cleansed and a moderate pressure dressing is reapplied until the eighth or ninth day. (FIG. 1).

The donor sites are dressed with vaseline gauze, gauze flats and a stockinette bandage. They are usually healed in eight to ten days.

Early movement is most important and this is especially true of the extremities. Physiotherapy is a partner in the early treatment of burns.

**Late Treatment:** The late treatment of burns, includes all of the procedures mentioned under the section on "WOUNDS." Revision of scars, the "Z" plasty, full and split thickness skin grafts, advancement of tissue from local areas and flaps of all types may be required. Time is the best friend of the burned patient, and its friendship should be allowed to mature before intervening.

#### ULCERS

Ulcers may be caused by injury, burns, infection, neurogenic, circulatory disturbances, etc. In strategic areas, healing may result in contracture, ectropion, joint fixation and deformity. The ulcer may remain chronic, causing physical debilitation, discomfort and economic loss. It can assume an acute stage, leading to fluid loss, de-



bilitation and eventual death. Repeated healing and breaking down may occur.

The systemic effects of chronic ulceration aside from debilitation may cause anemia, hypopro-

teinemia, generalized infection and chronic enervation. The patient's general health must be stabilized with the aid of fluids, proteins, blood, anti-biotics, baths and general supportive treatment. As soon as possible the ulcer should be exchanged for a normal skin covering.

Large ulcers that heal by scar contain a covering devoid of normal skin elements and are sensitive to trauma. Repeated ulceration results in a piling up of relatively avascular scar tissue surrounding the wound. Local ointments or medication will not change this picture. The ulcer and all of the surrounding scar up to good healthy skin must be resected and replaced with skin from a healthy donor site. In some ulcers of the lower extremities vein ligation is required in conjunction with reparative surgery.

It may be necessary to bring a pedicle onto the defective area, which can be done at the time while in some cases it can be delayed and substituted for the immediate skin covering.

Regardless of the etiology, if the ulcer be of long standing it should be resected widely and replaced with healthy skin. (FIG. 2).

#### SUMMARY

When skin has become absent it is important to replace it as soon as possible. Sheets of skin or pedicles can be judiciously employed. Chronic loss of skin results in ulceration which may lead to general debilitation. Surgical principles of wound care, early closure, meticulous suturing, avoidance of wound tension, gentleness with tissue, respect for circulation, careful dressings and general supportive treatment are of prime importance.



(B)



FIGURE I

**Burned hand:** (A) Destruction of the skin and underlying tissues. Tendon sheaths are exposed. The hand has been debrided and readied for grafting. (B) Split skin grafts applied over the hand and fingers. Function has been restored. Patient continues in physiotherapy following plastic repair.



FIGURE II

**Decubitus Ulcer in a paraplegic:** (A) The ulcer and surrounding scar tissue has been resected. The bony prominence removed. An adjacent pedicle flap has been rotated onto the defect and the area closed. Two years have elapsed since the surgery without recurrence.

## RENAL HYPERTENSION

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The importance of hypertension as a medical problem exists in over fifteen million people in the United States who show some degree of elevation of blood pressure above the standard normal. Fifteen million people over 25 years of age have hypertension, and about one million over 45 years of age die every year and of this million, 450 thousand, or one out of every two, dies of one or another sequelae of cardiovascular renal disease. The magnitude of this problem is certainly extensive especially when we consider our lack of thorough understanding of the origin of this disorder and our lack of progress in its treatment. Hypertension is being recognized by the laymen as a killer more malignant than cancer. In such a widely publicized disorder as this, it is natural for the layman to hold certain views concerning it. These have, in a large part, been based upon mortality statistics derived from insurance companies, which tend to over emphasize the high death rate associated with hypertension, and completely ignore those hypertensive individuals who have a favorable outlook for a normal life expectancy with relatively little impairment in health and economic status. It is this latter group with which we are concerned in this presentation.

Medical measures of treatment have proven inadequate and impractical in many cases. A survey of the use of the multitude of drugs in the treatment of hypertension merely serves to re-emphasize the fact that a substance easily administered with a prolonged hypotensive action and without toxic effects is yet to be found. The hope and search for an antipressor substance continues and until such is found, regimens emphasizing drug therapy, rest, and inactivity are substituted but not accepted by all patients.

Now the development of more effective diagnostic, and consequently surgical techniques, has given new hope to those hypertensives falling within the group of patients not benefited by, or dissatisfied with, drug therapy. A number of considerations have stimulated renewed interest in the treatment of essential hypertension by

means of surgery. Surgical measures now available for the alleviation of hypertension involve interruptive procedures of the sympathetic nervous system.<sup>23-31</sup> There are instances of extra renal hypertension<sup>19</sup> which demand surgery and these are briefly pheochromocytoma, Cushing's syndrome, coarctation of the aorta, thyrotoxicosis, and arteriovenous fistulae. We are not concerned with these at this time. There is one group of hypertensives which we are particularly interested in evaluating and attempting to relieve by surgical measures. These individual's hypertensive state is on the basis of a unilateral renal disease. This very small group can be benefited by surgical measures in one of every two instances by removal of the diseased kidney.<sup>26</sup> The possibility of the presence of any of these diseases must be thoroughly investigated before removing a kidney of a hypertensive patient even though that individual does show unilateral renal surgical disease.

### General Considerations

It has long been known that hypertension is related in some manner to pathological changes in the renal substance. Many investigations have indicated a relationship between renal disease and hypertension. In 1909, Janeway<sup>18</sup> demonstrated a rise in blood pressure was present on ligating the branches of the renal artery of the dog. In 1910, Longcope<sup>18</sup> definitely showed a relationship between chronic pyelonephritis and sustained elevation of blood pressure. In 1930, Goldblatt,<sup>11-12</sup> Page,<sup>6-21-25</sup> and Longcope<sup>18</sup> concluded from experimental work that arterial hypertension was probably the result of an obstruction to the renal circulation, and that secondary hypertension was more often associated with renal disease than with diseases of all other parts of the body combined. Simple experiments performed by Goldblatt<sup>11-12</sup> and his associates have demonstrated this most clearly, and particularly so in demonstrating the impairment of renal circulation by a unilateral lesion. This has been very definitely correlated on a clinical basis.<sup>2-3</sup> Clinical reports have shown that an elevated blood pressure may return to normal, and remain so, for a period following removal

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of a kidney in which there is non-nephritic or so-called "surgical" disease. Page and his collaborators<sup>6-24-25</sup> have shown that a vasopressor substance, which they have called "angiotonin," is liberated in increased amounts in the renal tissues of hypertensive animals. Angiotonin produces an increase in arterial pressure with a resultant decrease of renal blood flow on the basis of arterial vessel wall constriction. The process does not depend solely on renal ischemia, but rather on a change from an altering blood flow to a continuous blood flow in the kidney producing intrarenal hypotension. There is, therefore, an alteration in renal hemodynamics, an alteration in renal blood flow. Corcoran and Page<sup>6</sup> postulate that reduced renal blood flow promotes excretion, or formation, of a pressor substance, renin, which units with a globulin activator to form "angiotonin." The angiotonin has a specific musculotropic action on smooth muscle of arteries with a resultant increase in tonus. This phenomenon is not found in normal kidney tissue with essential hypertension; and, therefore, normal kidney tissue must deactivate, or destroy, angiotonin, or it must secrete an antipressor substance which does deactivate or destroy it.

It has not been adequately demonstrated that the renin mechanism is responsible for early essential hypertension in man, but it has been shown that renin is demonstrable in the systemic blood of dogs after clamping the renal arteries. However, the clamped vessels in a hypertensive dog, or man, show not renin in the circulatory system; therefore, there must be some other mechanism responsible in chronic hypertensive states.<sup>30</sup> Another view, by Goldring and Chassis,<sup>13</sup> states that it has been demonstrated in the experimental animal that only partial constriction of renal arteries to both kidneys results in persistent elevation of both systolic and diastolic blood pressures. However, observations of the blood pressure increase as an experimental result of unilateral clamping of the renal artery occurs rarely in their experience. The observations that are available on the effective unilateral renal artery constriction in the dog indicate that increase of the blood pressure is quite uncommon and may only be transient. There are reported instances of persistent elevation but they are only occasional. The infrequent presence of persistent hypertension involving unilateral renal artery constriction in the dog and

the rarity of cure in these dogs, following nephrectomy, makes acceptance of unilateral renal constriction as the mechanism necessary in the pathogenesis of even experimental renal hypertension to appear irregular, and certainly offers little or no basis for transferring this mechanism and cure to human essential hypertension.

The elevation in blood pressure is the only outward index we have of the complex disorder in human hypertension. The unreliability of the blood pressure with regard to its instability in the hypertensive state must be emphasized. A single reading is worthless because of the multitude of variables present in patient, doctor, and apparatus. A pressogenic agent to the patient may take the form of the physician, himself, his nurse, his office or the preceeding, present, or anticipated events.<sup>30</sup>

#### *The Unilateral Renal Surgical State*

It has been shown by numerous investigators that the incidence of hypertension in urologic conditions is no greater than, and is frequently less than, the incidence to be expected by the random sampling of chance as judged by the frequency of the disease in the general population without urologic disease.<sup>1-2-3-30</sup> If unilateral renal disease can initiate hypertension in man, it would be expected that the incidence of hypertension would be greater in patients with unilateral renal disease than in a control group of normal subjects. Available statistical evidence indicates that the incidence of hypertension is similar in both groups.<sup>13</sup> Clinicians have all observed association of various lesions of the urinary tract with an elevated blood pressure such as urinary tract obstruction due to benign prostatic hypertrophy, renal parenchymal disease, polycystic renal disease, periarteritis nodosa, amyloidosis, mercury and heavy metal poisonings, Wilms' tumor, renal hypoplasia, calculus disease of the kidneys, and nephroptosis.

The patient whose primary complaints or symptoms are definitely related to an advanced surgical disease of one kidney, and who has incidental hypertension, the immediate therapeutic problem is simple since nephrectomy would probably be necessary and advisable whether or not hypertension was present.

We are primarily interested in the unilateral urologic conditions that may result in hypertension as found in renal hypoplasia, tumors of the renal pelvis, unilateral calculus disease, nephroptosis, atrophic pyelonephritis, renal tuberculosis,

hydronephrosis, renal injury, aneurysm, solitary cyst encroaching upon the renal pedicle,<sup>16</sup> pyonephrosis, and postembolic infarction of the kidney with atrophy. These are the surgical or non-nephritic lesions which may or may not produce a hypertension.

Fox estimates that 15 per cent of the population of the United States have pyelographic deformities of some type.<sup>30</sup> Several investigators have reported the incidence as high as 27 per cent and as low as 9 per cent.<sup>30</sup> Palmer<sup>30</sup> reports 16 per cent of people have unilateral pyelographic deformities with or without symptoms related to the urinary tract. All patients in his series are normal tensile individuals and do not show even transient elevations in blood pressure. Strangely the patient with bilateral chronic pyelonephritis without hydronephrosis only occasionally develops hypertension. However, there is a definite high incidence of unilateral pyelonephritis with atrophy, with or without hydronephrosis, which does result in hypertension. Ratliff and Conger<sup>26</sup> found 25 per cent of 188 hypertensive patients had pyelographic abnormalities but only 9.4 per cent demonstrated no symptoms of urinary tract disease. Ratliff<sup>26</sup> found 8.9 per cent incidence of urologic disease in 2,055 hypertensive patients, and then less than 5 per cent were candidates for nephrectomy and even fewer than 5 per cent came to operation. In the present series of Ratliff,<sup>26</sup> the greatest incident of favorable results occurred in the cases of adult chronic pyelonephritis, hydronephrosis, and calculus pyonephrosis. In the group of cases of infantile chronic pyelonephritis, the incidence of cure was definitely less than that in the adult type.

Braasch<sup>1-2-3-30</sup> surveyed 4,000 patients with hypertension and found non-nephritic surgical lesions in 2½ per cent. It can be concluded from surveys of the available literature that less than 10 per cent of hypertensives have demonstrable urologic disease.<sup>30</sup>

From such statistics does unilateral renal disease produce hypertension in a sufficient number of patients to warrant a complete urologic investigation? This is a matter of conjecture. In a sifting process the most valuable single procedure is the excretory urogram; therefore, an intravenous urogram should be a routine procedure in the evaluation of each patient with hypertension if the patient (1) gives a history of urinary tract disease sometime during his life,

(2) has at one time or another been told that he has had microscopic hematuria or pyuria, (3) the patient is less than 20 years of age and no coarctation of the aorta is demonstrable, and (4) if positive findings on a physical examination are suggestive of renal involvement.<sup>1</sup> Braasch<sup>1-2-3</sup> believes that excretory urography or cystoscopic examination is not indicated unless one of the foregoing conditions is present in the patient with hypertension. If unilateral disease is found on excretory urography, then a more complete urologic investigation with cystoscopy and differential functional studies is mandatory.

The criteria are certainly easy to follow and should result from the initial workup of the hypertensive patient. It is simple enough to take a K.U.B. film of every individual who has hypertension, paying particular attention to each renal outline as to its size, shape and position. A marked difference in the size and shape of the two kidneys should call attention immediately to the possibility of a unilateral renal lesion. Renal shadow suggestive of a small atrophic kidney with a displacement toward the midline should suggest the presence of unilateral renal surgical disease, and a suitable plan of workup should be outlined to make an accurate diagnosis with possibility of surgery in view. Braasch<sup>2-3</sup> states that in a routine urographic study of cases with hypertension, evidence of abnormality often is observed such as moderate ptosis, angulation of the ureter, slight pyelectasis or slight abnormality of the outline of the calyces structures from a previous infection, pregnancy or etc. However, he believes that most of these lesions are usually of little or no significance as far as the hypertension is concerned.

The question both patient and doctor would like answered is will a patient with unilateral renal surgical disease, if nephrectomized, (1) obtain a normal blood pressure, (2) an amelioration of symptoms, (3) an arrest in the progress of the disease. In other words, is it worth the time, effort, and cost to investigate all hypertensives when less than 10 per cent have urologic disease which could be the etiologic factor in their hypertension? Schroader and Fish<sup>16</sup> state that an existing hypertension of more than two years is irreversible, and that surgery at this time is of little value except for alleviation of pain and symptoms due to the hypertension. The fact that some patients with unilateral lesions have responded to nephrectomy proves that unilateral



renal disease is probably the sole etiologic factor in producing hypertension in certain individuals. True, the percentage of operative cases is small, those operated smaller and those "cured" still smaller. We should strive to discover more and not be discouraged by the few cases that are "cured," but rather be encouraged to go on investigating individuals that have hypertension and particularly those with a unilateral renal disease.

Discovery and treatment of cases before they become irreversible must be the keynote. A definite plan should be outlined to follow such investigation.<sup>27</sup> First and foremost, it must be determined that the patient is not suffering from essential hypertension. The most difficult problem in the case of hypertension, both from point of diagnosis and of prognosis, is to determine if the renal lesion detected could be the etiologic factor, or is merely coincidental. In many instances hypertension has been present for years, and the renal disease seems to be minimal or recently superimposed on an already elevated blood pressure. Secondly, we must realize that there is no reduction in the blood pressure if the involved kidney is completely functionless, and in such a patient, the most that could be hoped for would be relief of symptoms. Third, in all instances the arterial pressure must be persistently elevated and must not show transient elevations and continued large variations on repeated examinations. Finally, hypertension should preferably be less than two years in duration to obtain a good result; however, in long standing cases, surgery may result in symptom arrest and arrest of the progress of the disease. The keystone in the plan is to be absolutely certain that the opposite kidney is perfectly normal, and therefore insuring the presence of adequate renal reserve. It is better if the normal opposite kidney is hypertrophied as demonstrated on roentgenographic examination. It would be ideal if the investigation could include urea clearance, inulin clearance and diodrast clearance as well as the standard functional test determined by phenolsulfonphthalein excretion, the indigo carmine excretion and concentration-dilution test.

It is definitely known that unilateral nephrectomy is of absolutely no value as far as reduction of the blood pressure is concerned in hypertensive patients over 60 years of age, or in any hypertensive who has evidence of chronic azotemia. Usually the younger the patient and the

shorter the duration of the elevated blood pressure, the better should be the outcome following nephrectomy.<sup>27</sup> The results of surgery can best be determined after two years of observation after nephrectomy.<sup>1-2-3-28</sup> If the results are constant to this time, then these results will be permanent in about 50 per cent of the patients nephrectomized, and in the remainder of the group, intercurrent causes of hypertension usually will have their onset and lead to an elevation of the blood pressure. In patients who are nephrectomized and whose blood pressure does not decrease to any great degree, but who exhibit relief of symptoms, it must be assumed that there is an elimination of the pressor factor by the removal of the diseased kidney. In a partial decrease of the blood pressure or with a temporary lowering, there is just that much less strain to the cardiovascular system present and this delays to some extent the inevitable breakdown of the heart and vascular tree.

In 1937, Butler<sup>1</sup> reported two successful cases of relief of hypertension in which nephrectomy was performed for atrophic pyelonephritis. Barker<sup>1</sup> reports 61 cases with hypertension, and subsequent nephrectomy, in which no deaths occurred. The blood pressure was checked every two to four weeks for a period of four years. Thirty-two of these patients were seen five years after nephrectomy and there was a good result in 10 in which the blood pressure was 150/100 or less. A fair result occurred in 5 patients in which the blood pressure was slightly greater than 150/100. There was a poor result in 11. Sabin<sup>27</sup> reports that a complete search of the literature reveals 106 cases of unilateral renal surgical disease have been operated, but only 100 of these cases are complete enough to be analyzed. Forty-five of these 100 cases were patients with atrophic pyelonephritis. Smith<sup>30</sup> reports 47 documented cases which resulted in a successful reduction of the blood pressure, 17 of these patients were under 20 years of age and 24 of them were forty or over. Significant fall in blood pressure of only 47 of the 242 patients in Smith's study is too small a percentage in a disease as variable in its course as hypertensive disease to establish unequivocally the hypothesis of casual relationship between unilateral renal disease and hypertensive disease. Cebert, Reval and Kantor<sup>5</sup> report a series of 20 hypertensive patients in whom nephrectomy was performed for various lesions with a result of 16 of the

patients showing a definite decrease in blood pressure. Those in which the blood pressure decreased only slightly or not at all, the symptoms such as headache, asthenia, and visual disturbances were relieved completely or at least minimized. Goldring states that only 10 per cent of patients nephrectomized are improved whereas Ratliff reports that one-third are improved and an additional 15 per cent are slightly improved.<sup>21</sup> Braasch<sup>2</sup> followed the postoperative course of the blood pressure in 372 cases in which a nephrectomy was performed. All these patients were traced for at least 6 months and the majority of them for a year. Preoperative hypertension had been observed in 198 of these cases, and 174 were normotensive before surgery. Hypertension was permanently relieved by surgical operation for various renal lesions in 65 or approximately one-third of the 198 cases. In 17 cases there was a postoperative drop of blood pressure but the hypertension returned in a short time after the procedure was done. But even a small percentage is well-worth the gain. Braasch<sup>2,3</sup> has estimated that only 1 in every 200 hypertensives has an operative unilateral renal surgical disease which would benefit by the operation. When putting this in terms of over 15 million hypertensives in the United States today, a significant figure of 75 thousand people benefiting from nephrectomy, is certainly something to think about and do something about.

In order to be amenable to a surgical procedure, the renal lesion must be unilateral, but many patients who have a minor degree of unilateral renal disease are definitely not suffering from hypertension on this basis. The surgical or non-nephritic lesions which may cause hypertension in the order of their occurrence are as follows:

1. Chronic and atrophic forms of unilateral pyelonephritis including those developing after previous conservative renal surgery
2. Renal neoplasm
3. Renal lithiasis
4. Hydronephrosis
5. Tuberculosis
6. Solitary cyst of the kidney encroaching on the renal artery

Renal infection may be the etiologic factor in pathologic lesions of the renal parenchyma giving rise to hypertension, but it should be remembered that in most cases of hypertension, there

is no clinical evidence of renal infection at the time of examination for the hypertension. The removal of the affected kidney reduces the elevated blood pressure to normal in approximately 60 per cent of cases of atrophic pyelonephritis and approximately 25 per cent in which the infection was secondary to renal stone and/or hydronephrosis.<sup>2,3</sup>

#### CASE REPORTS

##### Case No. 1—Mrs. C. R.

A 30 year old white female was seen at the request of an internist in June 1942 for evaluation of hypertension. Intravenous urograms done by the referring physician revealed a ptosis of her right kidney and a congenital abnormality of the left. In 1938, the patient had a toxemia of pregnancy with blood pressure of 190/110 at which time labor was induced and a living baby delivered. For a period of four months after delivery, the patient had intermittent and profuse vaginal hemorrhage for which hysterectomy was indicated and performed in February 1939. Postoperative course was uneventful; however, the patient complained of persistent headache and was seen by the referring internist early in 1942. She was advised to have an operative correction of the right kidney first followed by removal of her left kidney. Patient was admitted to hospital on June 26, 1942. Blood pressure at that time was 180/150. The heart was enlarged slightly to the left and the right kidney was palpable on deep inspiration and freely movable. The remainder of the physical examination was essentially normal. Voided urine at the time of admission showed acid reaction, specific gravity 1.012, 6-8 wbc and 15 rbc per high powered field, and many bacteria and epithelium cells. The NPN was 54 mgs. per cent and the creatinine was 1.3 per cent. A right nephropexy was performed on June 28, 1942. Postoperative course was uneventful. A cystoscopic examination on July 8, 1942 revealed a ptosis of the right kidney, and a differential P.S.P. test with a Garceau catheter inserted in the left ureter in such a fashion as to block it, showed 35 per cent excretion of the dye in 23 minutes from the bladder and only 12 per cent from the left kidney. A left nephrectomy was performed on July 14, 1942. The preoperative blood pressure was 160/110 and at the conclusion of the procedure, it was 140/90. The pulse remained constant throughout the entire procedure. The pathological report was congenital aplasia with



Fig. 1

Case 2. Intravenous urogram (1 hour film) demonstrating normal left kidney and ureter, and only a small area of poorly concentrated contrast media in the right renal region.



Fig. 2

Case 2. Right retrograde study demonstrating the typical pyelographic configuration of a congenital hypoplastic kidney.

pyelonephritis with marked fibrosis. Postoperative course was complicated by a low grade pneumonitis. Blood pressure on July 17, 1942 was 136/80. Drains were removed from the wounds on the 17th and on the 22nd of July the patient was up and about without complaint and the wound was well healed. Patient was discharged on July 26th, and she was not seen again until May 25, 1944 at which time the blood pressure was 120/80. Patient last visited office on April 20, 1949 at which time blood pressure was normal.

Case No. 2—Mrs. E. S. (FIG. 1 AND 2).

A 51 year old white married female was first seen November 30, 1948 with a complaint of painful urination with moderate frequency. The symptoms began two years prior to examination and the patient had been treated by irrigation and penicillin by the referring physician. Cystoscopic examination at this time revealed multiple polypi and varicosities of the bladder and vesicle outlet. These areas were fulgurated under local anesthesia. Patient returned for recheck cystoscopy in February 1949 at which time her bladder was found to be normal and polypi were present in three areas of the proximal urethra. These areas were fulgurated. Patient mentioned at this time that she had had a history of high

blood pressure since age 19 years. Blood pressure on this examination was 180/115. Intravenous urogram was done on June 6, 1949 and also a right retrograde. The films revealed a normally functioning hypertrophic kidney on the left and a small atrophic pyelonephrotic right kidney. Urine culture showed a heavy growth of *Aerobacter aerogenes*. She was given chloromycetin, 1 gm. daily and returned in five days symptom-free. Her blood pressure was 185/85 at this time. Cystoscopy performed revealed an acute cystitis. A No. 5 catheter was passed to each renal pelves and specimens collected which were negative on all culture media. Poor concentration and quantity of urine was obtained from each side. The patient was seen on several occasions for the next two months and the pelves were lavaged on one occasion and the bladder was irrigated on four occasions. On the 12th of October 1949, she appeared very much improved although the catheter urine showed many bacilli which proved on culture to be *Bacillus subtilis*. There was no growth of *Aerobacter aerogenes*. Patient was admitted to St. Mary's Hospital on October 20, 1949 for a right nephrectomy. Blood pressure was 230/128, pulse 78, respirations 21. Patient was an obese, white, well-developed, well-nourished female in no acute distress. Physical examination revealed a few varicosities of

both legs and was otherwise negative. Catheterized urine specimen on admission was acid, specific gravity 1.011, negative for sugar, trace of albumin, occasional leucocytes, 2 plus amorphous material, and 3 plus epithelial cells. The hemogram was normal. The film of the chest revealed no abnormality. A right nephrectomy was performed on October 21, 1949. The preoperative blood pressure was 220/120 and at the conclusion of the procedure, it was 158/90. Pulse remained stable at 82 throughout the entire procedure. The pathological report was atrophy of the right kidney consistent with the contracted kidney of chronic pyelonephritis. The postoperative course was uneventful and on the 7th postoperative day, the patient's blood pressure was 170/88. She was discharged on October 29, 1949. Six weeks postoperative the blood pressure was 160/90 and on February 7, 1950 it was 160/100. The patient has been doing very well with regard to her urinary tract, and has noted relief of symptoms which were present preoperatively.

Case No. 3—Mrs. G. D.

A 43 year old white female who underwent gynecological surgery on January 4, 1945 at which time the right ureter was inadvertently severed and a vaginal fistula occurred. The right ureter was transplanted into the urinary bladder in April 1945. The patient first began to notice dizziness in December 1945 and was admitted to St. Mary's Hospital on December 12, 1945 for evaluation. Physical examination revealed a palsy of the right 6th cranial nerve. There was tenderness to deep pressure over the right renal area and in the right lower abdominal quadrant. A voided urine on admission revealed a specific gravity of 1.020, negative sugar, 1 plus albumin, 2-4 leucocytes and 8-10 squamous epithelial cells per high powered field. Blood urea nitrogen was 21.4 mgs. per cent, creatinine 1.4 mgs. per cent, and non protein nitrogen 48.0 mgs. per cent. Hemogram was normal and Kahn and Wassermann were negative. Cystoscopy under local anesthesia revealed a normal left ureteral orifice. The right ureteral orifice was visible but scarred and not retracted. Several attempts were made to catheterize the right transplant of the orifice without success meeting an obstruction at 2 and  $\frac{3}{4}$  cms. from the bladder. Indigo carmine function was 2 minutes 45 seconds on the left and no dye was seen to appear from the right orifice during the entire examination. P.S.P. concen-

tration on December 15, 1945 was 30 per cent in 18 minutes, 10 per cent in 30 minutes, 10 per cent in 45 minutes, and 5 per cent at 60 minutes; for a total of one hour 65 per cent. E.K.G. showed a fairly normal tracing with a tendency toward low voltage. Blood pressure on December 13, 1945 was 140/95 and on December 16, 1945 was 145/85. The patient was advised to have a right nephrectomy performed. She was seen at the office on April 18, 1946 and had not made up her mind concerning surgery. On August 28, 1946 her blood pressure was 140/100 and on December 4, 1946 it was 155/100. She was admitted to St. Mary's Hospital on April 2, 1947 and on April 3rd, a right nephrectomy was performed. The preoperative blood pressure was 140/95 and remained so throughout the entire procedure. A preoperative intravenous urogram revealed a non-functioning right kidney of approximately normal size and an enlarged normal left kidney. The pathological report was hydronephrosis of the right kidney on the basis of non-calculus obstruction. The postoperative course was uneventful and the patient was discharged April 13, 1947. She visited the office April 25, 1947 and her blood pressure at that time was 160/100.

Case No. 4—Mrs. W. M. E. (FIG. 3).

A 55 year old female with a history of ten to twelve years of intermittent episodes of bilateral pyelonephritis, with symptoms most marked and most persistent on the right. The referring internist made a diagnosis of contraction of the right kidney with hypertension probably on this basis. In 1942, 6 years prior to our examination, she had received radium therapy for a grade I adenocarcinoma of the body of the uterus. Physical examination at this time revealed a blood pressure of 190/124 and no other abnormalities with the exception of residual fibrosis of the cervix and adnexae on vaginal examination. She was admitted to St. Mary's Hospital on July 19, 1948. Examination of a voided urine at the time of admission revealed acid reaction, specific gravity of 1.012, and no other positive findings. The hemogram was essentially normal. Intravenous urograms showed a slightly enlarged normal left kidney and a smaller than normal poorly functioning right kidney with a slightly dilated pelvis suggestive of pyelonephritis with atrophy. A right nephrectomy was performed on July 20, 1948. The preoperative blood pressure was 170/110 and it remained so throughout the





Fig. 3

Case 4. Intravenous urogram (20 minute film) demonstrating a normal left kidney with moderate hyperplasia, and a small poorly functioning pyelonephritic right kidney with hydronephrosis.



Fig. 4

Case 5. KUB film prior to intravenous urographic series revealing a right solitary renal calculus.

course of the operation with the pulse remaining stable at 80. Postoperative course was complicated by some visical irritability which was relieved with sulfonamide therapy and sedation. Her blood pressure on July 23, 1948 was 180/100, on July 26th 190/110 and on July 27th 175/90. She was discharged from the hospital on July 29, 1948 and was seen in the office on August 17, 1948 with a blood pressure of 170/90. On March 31, 1950, approximately seven months after surgery, her blood pressure was 180/100. There is no significant change in blood pressure from that noted preoperatively, but this patient states that she feels much better than she has during the past fifteen years.

Case No. 5—Mrs. F. K. (FIG. 4, 5, 6).

A 44 year old married white female was first seen on September 28, 1948 with the complaint of burning and frequency of urination. In June 1948 she was told that she had an elevated blood pressure, and that there was some pus in the urine. A catheterized specimen of urine revealed 4 plus pus on microscopic examination and cultured *B. coli*. She was given a course of sulfathaladine with only minimal benefit. Her blood pressure was 210/130. She was followed for a few weeks while on sulfonamide therapy, and advised to have a cystoscopic examination be-

cause of the persistence of pyuria. Intravenous urogram on October 14, 1948 revealed a calculus in the right kidney with poor function of the right kidney and a normal left kidney. She was advised to have a nephrectomy. She was admitted to Tucson Medical Center on December 1, 1948 at which time her blood pressure was 220/180. A catheterized urine at the time of admission showed a moderate pyuria. The hemogram was normal. A course of medical measures consisting chiefly of sedatives was instituted in attempt to lower the blood pressure but this was without effect. A right nephrectomy was performed on December 7, 1948. The preoperative blood pressure was 180/120 and at the conclusion of the procedure was 170/100. The pulse remained constant at 80 throughout the entire procedure. Her postoperative course was essentially normal and she was maintained on a salt-free diet and phenobarbital grs. one-quarter 4 times daily for sedation. The pathological report was renal calculus and chronic atrophic pyelonephritis. The day after surgery, her blood pressure was taken several times and ranged from 130/90 to 160/110. On December 11, 1948, her blood pressure was 180/100; on the 12th, 142/93; on the 13th, 166/66; on the 16th, 138/70; on the 18th, 140/98; on the 19th, 130/94; on the 20th, 140/90; on the 21st, 128/88; and on the



Fig. 5

Case 5. Intravenous urogram (10 minute film) demonstrating a normal left kidney, and no concentration of contrast media by the right kidney. The calculus noted in Fig. 4 is again seen.

22nd, the day of discharge, it was 118/90. The patient was seen at the office one week after discharge and her pressure was 145/95. She visited the office on February 12, 1949 before returning to her home in the East and her blood pressure was 140/90 at that time.

### CONCLUSION

Routine urologic studies in all hypertensive patients regardless of the high over-all cost entailed appears to be a desirable method of evaluation of their disease for a significant number of patients have gross lesions which would not otherwise be discovered and which might be amenable to surgery. Urographic evidence of deformity in the urinary tract does not always signify that the renal lesion is an etiologic factor of hypertension, and many renal deformities observed in a urogram do not have any clinical significance.

The mention of unilateral nephrectomy for hypertension a few years ago usually resulted in enthusiastic discussion with ready acceptance, but it is now approached with a more critical eye and very justly so, for unilateral nephrectomy should be undertaken with caution and only after a complete clinical study. Pessimism with

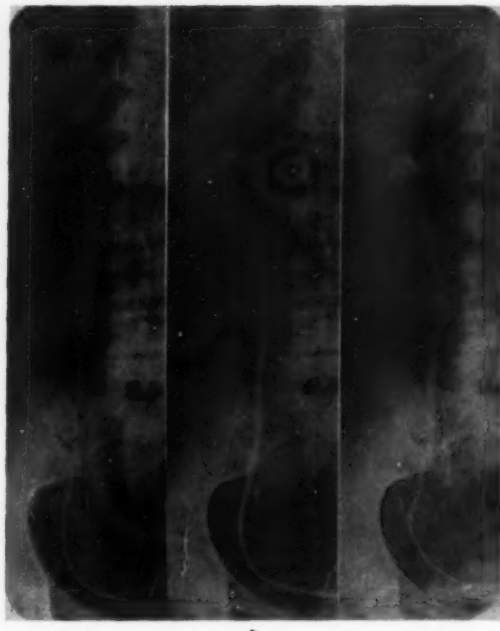


Fig. 6

Case 5. Right retrograde study.

- a. Film with No. 5 catheter in place in the right ureter and before injection of contrast media.
- b. Film with No. 5 catheter in place and taken following injection of contrast media.
- c. Final film after injection of contrast media and after removal of catheter demonstrating the renal calculus and moderate pyelectasis and caliectasis consistent with pyelonephritis and other secondary changes due to the presence of the calculus.

regard to surgical treatment of the diseased unilateral kidney is not fully warranted. When unilateral renal disease is demonstrated by a roentgen examination, it can be treated by nephrectomy with an expectation of improvement or cure of the associated hypertension in about one-third of the cases. While unilateral nephrectomy may occasionally result in probable "cure," the variable and often unpredictable course of the blood pressure level in a disease of such magnitude requires evaluation of this procedure in each specific case to be exact before acceptance. A review of the literature reveals that of those individuals having hypertension, only one-half per cent are candidates for unilateral nephrectomy.

When the patient has decided on operation, he may expect to derive permanent benefit if under 50 years of age and if the hypertensive state is of comparatively recent origin. However, even in carefully selected cases, no definite statement can be made as to the alleviation of the hypertension itself or of the symptom complex. In operated patients, the blood pressure

may remain at a low level for a year or more after operation, and usually remain so after this period of time. One follow-up study of cases in which hypertension was present and in which operation was performed shows that in a third of the total cases, the blood pressure became normal after operation and remained so for a year or more.

In only a few well studied cases should nephrectomy be performed, and then primarily not to lower blood pressure but rather to extirpate the established urologic disease.

### SUMMARY

Patients less than fifty years of age who have had an elevated blood pressure and hypertensive symptoms complex for less than two years and who give a history of urologic disease should have an intravenous urogram as part of their hypertension workup.

If a unilateral renal surgical lesion is found after ruling out all other causes of hypertension, this lesion should be thoroughly investigated with surgery in view for relief of the hypertensive state. However, surgery should be recommended only if the contralateral kidney is normal in all respects.

Unilateral renal surgical disease is present as an etiologic factor in three of every six hundred hypertensive patients, and one of these three may receive lasting benefit by relief of their hypertension by nephrectomy.

Chronic atrophic pyelonephritis as a source of hypertension is the most common lesion in the group of unilateral surgical, or non-nephritic lesions.

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## DIARRHEAL DISEASE ON AN INDIAN RESERVATION

*Report of 221 Cases, Emphasizing Etiology  
and Epidemiology*

ISRAEL GITLITZ, M.D.  
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The problem of the causation of diarrheal disease is almost always complex. When it becomes involved in tribal customs, primitive sanitary facilities, and acceptance of diarrhea as an inescapable component of everyday life, then the problem may well be insoluble. This paper will deal with the etiology of diarrheal disease in the Indians residing in the Gila River, Pima-Maricopa Indian Community, in Arizona.

The prevailing belief has been that all diarrheas common to these Indians are caused by (1) improper diet, or (2) functional digestive disorders, or that they are (3) secondary to some parenteral infection. However, clinical observations indicate that these views are, in most instances, fallacious, and each will be discussed presently. The section on Results will consider the etiology of these disorders, and the Discussion the epidemiology.

### *Material and Methods*

Beginning in May 1949, the Reservation, comprising 7500 Indians, had a heavy outbreak of diarrheal disease. A series of cases were studied to determine the underlying causes. The total number (to the end of the first week of August 1949) was 221 patients—either hospitalized or treated as out-patients. (An unknown number were untreated, due largely to a lack of personnel.)

At the beginning of the survey, standing orders were issued which required a specimen to be taken of each abnormal stool passed by these patients at the hospital, no matter what the primary diagnosis was on admission. These stool specimens were then sent to the Arizona State Health Department Laboratory in Phoenix, Arizona for bacterial cultures.

### *Results*

Within a short period it became clear that the clinical impressions had been correct. The results of the stool cultures (Table 1) indicated the faultiness of two of the previously mentioned opinions concerning etiology: these diseases were neither "dietary problems" nor "functional disturbances." They were enteric infections.

It is to be noted that of the total of 221 patients with diarrheas it was possible to isolate, on culture, a dysentery-causing organism in 134 cases (60 per cent). It was felt that there would have been a much larger number of positive stools if difficulties could have been overcome such as the lack of patient cooperation, language difficulties and out-patient treatment. In addition, many specimens were lost or broken in transit, some were "missed," destroyed or broken, either in the hospital or in the laboratory, and the time interval between taking the specimens and culturing them often was as much as 72 hours. Even under such circumstances, however, the percentage is noteworthy, and the large number of stools positive on culture for the Paracolon organism (an intermediate organism between *Escherichia coli* and *Aerobacter aerogenes*) should demonstrate that this organism is an enteric pathogen, not only for infants and small children, but for all ages.

Concerning the third of the previously-mentioned opinions, that a large number of diarrheas are associated with or are secondary to parenteral infection, Table 2 gives our results. Of 221 cases of diarrhea, 54 (25 per cent) were either associated with, or were secondary to, parenteral disease. In 16 (30 per cent) of these 54 cases, it was possible to isolate, on culture, a dysentery-causing organism. Our experience seems to confirm the belief that in the majority of cases the diarrhea is primary and is a bacillary dysentery. If cultures of all abnormal stools are taken, the tenacity of the physician, basing his search upon the clinical evidence furnished by the patient, will usually be rewarded by the isolation and demonstration of a causal organism.

**Mortality rate.** In this series of 221 unselected cases, there were only two deaths. The first occurred in an infant four months of age, who was admitted in a dying condition and expired a few hours later. The child had been born prematurely, with congenital syphilis, and had been ill for at least two weeks before admission, undergoing "treatment" during this time by the local



TABLE 1

Results of Stool Cultures

Age Group	Number of Cases	Organisms Recovered From Stools	Cases With Positive Cultures	Cases With Negative Cultures	Cases Pos. for B. Paracolon	Cases Positive for Shigellae	Cases Pos. for Salmonella Group
Newborns	8	(1) <i>Shigella paradysenteriae flexner</i> (2) B. Paracolon	5	3	4	1	0
Up to 12 months exclusive of newborns	131	B. Paracolon <i>Shigella p. flexner</i> : <i>Pseudomonas aeruginosa</i> * <i>Proteus ammoniae</i> <i>Proteus mirabilia</i> <i>Proteus morgani</i> * <i>Proteus vulgaris</i> <i>Salmonella paratyphi</i> <i>Salmonella newport</i>	74	57	45	12	6
1 yr. to 5 yrs.	52	B. Paracolon <i>Shigella p. flexner</i> <i>Proteus mirabilia</i>  <i>Salmonella typhosa</i> <i>Salmonella newport</i> <i>Salmonella typhosa</i> <i>Salmonella newport</i>	34	18	18	10	6
School Children	11	B. Paracolon <i>Proteus mirabilia</i> <i>Pseudomonas aeruginosa</i>	9	2	8	0	3
Adults	19	B. Paracolon <i>Shigella flexner</i> <i>Salmonella typhosa</i> <i>Escherichia coli</i>	12	7	7	2	1
TOTAL			134	87	82	25	16

\*These three organisms (*E. coli*, *P. ammoniae*, and *P. vulgaris*) while not considered enteric pathogens, were, in several instances, recovered from stools (and from abscess cavities) under circumstances which might lead one to suspect that their presence was not altogether beneficial to their host.

TABLE 2

Cases of diarrhea, associated with or secondary to parenteral diseases.

Age Group	Parenteral Diseases	No. of Cases	No. With Positive Stools	No. With Negative Stools	Paracolon	Shigella	Salmonella Group	Other
Newborns	Congenital Syphilis	2	2	0	1	1	0	
	Prematurity	1	0	1	0	0	0	
	Bronchitis	1	0	1	0	0	0	
Up to 12 months exclusive of newborns	Pneumonia, lobular	9	2	7	1	0	1	
	Pneumonia, lobar	3	1	2	0	0	0	<i>Proteus Morgani</i> (1)
	Measles	2	0	2	0	0	0	
	Otitis Media	1	0	1	0	0	0	
	Tonsillitis	1	0	1	0	0	0	
	Bronchitis	3	1	2	1	0	0	
	Septicaemia	1	0	1	0	0	0	<i>Hemolytic staphylococci</i> in blood culture
1 yr. to 5 yrs.	Bronchitis, acute	8	2	6	2	0	0	
	Pneumonia, lobular	8	3	5	2	1	0	
	Measles	4	0	4	0	0	0	
	Polio-Encephalitis	1	0	1	0	0	0	
	Encephalitis, acute	1	1	0	0	0	0	<i>Pseudomonas Aeruginosa</i>
School children 6 to 14 yrs.	Tuberculosis pulmonary	3	3	0	1	0	3	
Adults	Ischio-rectal abscesses	1	1	0	0	0	0	
	Syphilis, late, latent	1	0	1	0	0	0	
	Bronchitis, acute	1	0	1	0	0	0	
	Residual monoplegia	1	0	1	0	0	0	
	Diabetes mellitus	1	1	0	0	1	0	
TOTAL		54	17	37	8	3	4	

Indian medicine man. Chief cause of death was neglect and the lack of medical care. The other death occurred in a three year old girl. She had been ill for a month with measles and "diarrhea" before being brought to the hospital.

Neither of these two deaths can be said to have been caused, directly, by diarrhea. In view of the nutritional status of these Indians, as a group, and in view of the time lag between onset of disease and time when medical aid is sought, this low mortality (2 deaths in 221 cases) may be considered encouraging.

#### Discussion

**Epidemiology.** Sewage from this hospital and from the village of Sacaton is discharged into the Little Gila River. The waters of the Little Gila are meant primarily for irrigation purposes, but are also used by these Indians for all household purposes, for swimming and even for drinking purposes, chiefly because of ready accessibility. Further pertinent epidemiological factors have been accurately described by Zander:<sup>1</sup>

"The horse-drawn wagon, and sometimes a truck, loaded with miscellaneous water barrels or cans, covered with a dirty tarpaulin, if covered at all, for its dusty journey of from ¼ to 3 or 4 miles to the inadequate adobe or ocotilla home shack with its nearby wide-open privy of scrap sheet metal or wood, perfectly designed to facilitate the breeding of flies to plague the Indian inhabitants of the unscreened huts and roofed but otherwise open hot weather living, cooking, eating and water storage patio, where the open barrel or clay urn with the tin drinking cup invite the thirsty to partake of the brew, is grossly inadequate and must be corrected if good health for the Indian is to be attained.

"In almost all instances, the home privy at best only serves to screen the timid and modest from the not too persistent gaze of others. It serves only to concentrate the putrid contents of the pit in a convenient breeding spot for flies and maggots which, during adulthood, contribute mightily to the extremely high infant mortality rate and the 'warm weather diarrheas' described to me."

The finding of numerous stools positive for the Paracolon organism is in itself an indication of fecal contamination of foodstuffs and drinking water. This irrigation canal, the Little Gila River, is the prime suspect. Open privies, uncovered water containers, flies and inadequate personal hygiene contribute to the situation. A re-

latively inexpensive educational program would doubtless work a measureable improvement.

#### Summary and Conclusions

1. A series of 221 unselected cases of diarrhea, with 2 deaths, is presented and discussed as to etiology and epidemiology.

2. Intestinal pathogens appear to be as readily isolated from the stools of infants and those under one year as from any other age group.

3. Diarrhea, as met with here, in most instances appears to be a bacillary dysentery, but when parenteral disease is associated with diarrhea it becomes increasingly difficult to isolate a dysenteriform organism.

4. The paracolon organism is definitely an enteric pathogen for all age groups.

5. Diarrheal disease is not, apparently, a sequel to functional damage of the intestinal epithelium by a parenteral infection, nor is it, as commonly thought, a "dietary problem" necessarily, or "functional disturbance." As met with here it is a primary disease caused by an enteric pathogen.

6. The sources of these diseases are the polluted irrigation canals, the open privies, the uncovered water barrels, the flies and the lack of adequate education in personal hygiene.

7. There is no room for complacency. Diarrheal disease is not inevitable. It can be largely eliminated by education and by the expenditure of a remarkable small amount of money in relation to the results obtainable.

#### Acknowledgment

I wish to extend my deep gratitude to H. Gilbert Creelius, Ph.D., Director of Laboratories, Arizona State Health Department, for all the work he has done in handling the thousands of specimens involved in this series of cases, and for his sound advice.

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## Editorials

### TREATMENT OF CONGESTIVE HEART FAILURE

The marked improvement in the treatment of patients with congestive heart failure during the past several years has been due to the re-discovery that the primary basis of cardiac edema is sodium retention and second to the more widespread use of the mercurial diuretics. Although Baynard, in 1722, said that "Salt creeps with the chyle into the blood and have no way out but by the urine" it remains for Schroeder, Schemm and others in 1941 and 1942 to popularize the low sodium diet together with liberal intake of water. Although it should be injected here parenthetically that Newburgh in 1930 called attention to the diuretic effect of water alone.

Due to the emphasis that is being placed on the mercurial diuretics the importance of digitalis is being seriously questioned. Indeed, it has even been suggested that congestive heart failure can be adequately treated by mercurial diuretics alone. But, as DeGraff has pointed out a careful appraisal of the mechanism of action of digitalis and of the mercurial diuretics will show quite clearly that one group of drugs

cannot be substituted for the other, and both are required for the intelligent management of congestive heart failure. Moreover it appears that digitalis is a more effective remedy in the treatment of early heart failure than are the mercurial diuretics.

Of the digitalis preparations commonly employed digitoxin, although exceedingly popular for a time, has now been largely replaced by digoxin. As has been pointed out digitoxin offered no advantage over digitalis leaf for the treatment of heart failure. Indeed, it is much less desirable than other digitalis preparations because of its slow dissipation and the great danger of prolonged and severe toxicity.

Digoxin which was first isolated from digitalis lanata in 1930 has been subject to considerable clinical investigation and appears to have a relatively short latent period and a short period of dissipation. It, therefore, should be the drug of choice since, if toxicity occurs, it will quickly disappear when the drug is withdrawn. Another digitalis preparation which is being more frequently employed is gitalin which is a watery extract of digitalis purpurea. It apparently has a greater therapeutic range than any other glycoside mentioned, and is employed in advanced cases of congestive failure where the therapeutic dose and the toxic dose of the other glycosides are about the same.

The four most popular mercurial diuretics, namely, mercuzanthin, mercurhydrin, salyrgan and thiomerin, all contain approximately 40 mg. of mercury per cubic centimeter and with the exception of thiomerin, have mercury radical chemically linked with theophylline. In thiomerin the theophylline is replaced by mercaptan. Although maximum diuresis is obtained when these preparations are given intravenously, thiomerin given subcutaneously is almost as effective as the other diuretics given intravenously and has the advantage of being the least toxic. Mercurhydrin causes no great pain when given intramuscularly but is less effective than thiomerin subcutaneously. Since the danger of untoward reaction is greatest when given intravenously, thiomerin is theoretically the most satisfactory of all mercurial diuretics. The oral preparations are inconstant in their action and are, therefore, of limited value. The amount of diuresis is affected not only by the preparations used and dosage but certain other factors such as the amount of physical rest at the time of the

onset and the peak of the diuresis, whether or not the patient is properly digitalized and the concomitant use of acidifying salt. Thus the effectiveness of a mercurial preparation will be increased approximately 25% by the administration of 75 grains of ammonium chloride daily for three of four days preceding the injection.

Not frequently one sees patients with chronic congestive heart failure who do not make a satisfactory response to the mercurials. This has been attributed to the development of renal tubular resistance to mercury. However, Leiter and his associates have demonstrated that it results in part from the marked decreased filtration rate occurring in severe congestive heart failure. This, the administration of aminophyllin 0.5 gm., intravenously 60 to 90 minutes after an injection of mercurial will frequently produce a good diuresis in patients previously resistant to mercurial. The danger of renal damage from frequent injections of mercurial diuretics has been much exaggerated. Although serious and possibly fatal sodium depletion and dehydration occasionally result from the too enthusiastic use of a mercurial, the pendulum is beginning to swing perhaps too far in the direction of the exaggeration of this danger.

The frequency of administration is dependent upon many factors such as the salt and fluid intake, the physical activity and the type and severity of the heart disease. Rather than give an injection every four or five days, it is perhaps better to give the injection with every four or five pounds gain in weight. Although some authorities have placed emphasis on the use of the daily dose of mercurials to bring the attack of congestive failure under control, more conservative in-

dividuals have found that if the patient is maintained on a diet containing 1 to 2 grams of salt daily, cardiac compensation can be satisfactorily maintained with a mercurial injection perhaps once in every two to four weeks.

It is now generally agreed that the so-called salt poor diet is ineffectively and that one must restrict the sodium intake in the diet to one or two grams of salt daily. This means that no sodium chloride can be used in the preparation of foods, particularly in making bread, and butter or margarine must be salt free or washed. Schemm has recommended an acid ash diet which brings about further excretion of the sodium salt since the natural acids are neutralized by the sodium from the interstitial fluid and the sodium salt is removed in the urine. He also emphasized that with limited fluid intake and with diminished cardiac output sufficient fluids are not provided to the kidney for filtration. He, therefore, recommends from 6 to 8 litres daily. The consensus of opinion, however, is that a minimum of 3 thousand cc. of fluid is required daily and since there may be an appreciable amount of sodium in ordinary tap water, distilled water is recommended. The palatability of the distilled water can be improved by the addition of dilute hydrochloric acid which will aid the ammonium chloride in bringing about a state of relative acidosis.

In summary it should be emphasized that although strict dietary control and the mercurial diuretics have brought about a marked improvement in the treatment of congestive failure, proper digitalization and strict individualization are still necessary for the satisfactory control of the signs and symptoms of myocardial failure.

R. S. F.

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## PHOENIX CLINICAL CLUB MASSACHUSETTS GENERAL HOSPITAL

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

A fifty-nine-year-old woman entered the hospital complaining of a mass in the abdomen.

Ten months before admission the patient noticed, after reaching forward a sensation of heaviness in the abdomen occurring about once a month and followed on one occasion by watery diarrhea. Four months later, while lying on her right side, she detected a mass in the left flank that progressively increased in size, but caused no symptoms, except a sensation of weight; at times it seemed to pulsate. Two months before admission she had an attack of low back pain, which radiated upward and was severer than the back pains that she had had for many years. During this period she worked hard and became weak, tired and dyspneic; after a period of rest these symptoms disappeared.

The past history was noncontributory except that she had been jaundiced for one month thirty years previous to admission.

On examination the patient was a well developed, moderately obese woman in no acute discomfort. Multiple subcutaneous nodules were palpable over the arms and thighs. The heart and lungs were normal. In the left upper quadrant of the abdomen was a firm, moderately tender, irregular mass about 10cm. in diameter. It descended with inspiration and was movable on pressure in the left costovertebral angle. Peristaltic sounds were heard in the region of the mass. Pelvic and rectal examinations were negative.

The temperature, pulse and respirations were normal. The blood pressure was 125 systolic, 80 diastolic.

Blood examination showed 14.9 gm. of hemoglobin and a white-cell count of 7400. The stools were negative for occult blood. The nonprotein nitrogen was 15 mg. per 100 cc., and the fasting blood sugar 100 mg. The total serum protein was 6.1 gm. per 100 cc. The serum amylase was

36 units per 100 cc. All urine specimens were negative.

A barium enema done ten days before admission showed passage of barium from rectum to cecum without delay. There was reflux into a normal appearing terminal ileum. No constant filling defect, ulceration or diverticulum was seen in the colon. The ascending colon and cecum was twisted on themselves so that the tip of the cecum lay in essentially the same position as the hepatic flexure. The palpable mass in the left upper quadrant was not attached to the bowel. The palpable mass was distinctly seen on the film. It measured 10 cm. in diameter. The stomach appeared to lie medially to the mass and above it. The spleen was not visualized. A small bowel enema showed the mass to lie in the left upper quadrant, between the stomach and transverse colon, displacing the stomach upward and the transverse colon and upper small intestine downward. An intravenous pyelogram was negative. A gastrointestinal series was negative.

On the ninth hospital day an operation was performed.

DR. THOMAS W. WOODMAN:

The diagnosis in this particular case does not seem to me to be too difficult. For that reason I believe that I can almost depend on "missing it cold." The patient is 59 years of age and the onset of symptoms was 10 months prior to admission to the hospital. She noted a sensation of heaviness in the abdomen and on one occasion this was followed by watery diarrhea. She herself had detected a mass in the left flank that had progressively increased in size but had not caused any symptoms other than a sensation of weight. It seemed to pulsate at times. She had had some back pain and had become weak, tired and dyspeptic but these symptoms did not persist all of the time.

I think that the past history given of jaundice for one month 30 years prior to admission may be of some significance. It is important to note too in the record that this patient was well developed, that she was moderately obese and that she was not in any acute discomfort at the time of examination. I believe that the multiple subcutaneous nodules palpable over the arms and thighs constitute a red herring in this record and

are not significant insofar as the diagnosis is concerned. These multiple sub-cutaneous nodules were in all probability fibromas or lipomas.

The description of the mass itself is of the utmost importance. It was in the left upper quadrant, was firm, moderately tender, and about 10 centimeters in diameter. It was movable on pressure in the left costo-vertebral angle and descended with inspiration. The blood examination throughout is essentially normal including blood sugar, total serum protein and the serum amylase. The urine was negative and the barium enema was negative except for the fact that the ascending colon and cecum were twisted on themselves so that the tip of the cecum lay in essentially the same position as the hepatic flexure. The mass in the left upper quadrant was not attached to the bowel. It displaced the splenic flexure laterally and the transverse colon inferiorly. The stomach appeared to lie medial to the mass and above it. The spleen was not visualized. The small bowel enema revealed the mass to lie in the left upper quadrant between the stomach and the transverse colon. The stomach was displaced upward and the transverse colon and upper small intestine downward. The intravenous pyelograms were negative.

The most logical diagnosis in this case is, to my mind, a cyst of the tail of the pancreas. There are other conditions which do have to be considered. The blood reports are essentially normal and I think we can pretty well rule out diseases of the spleen. If this was an omental cyst or tumor we would expect to find a displacement of the transverse colon different from that given in the record. A cyst of the gastro-colic ligament could give x-ray findings which would fit in with those which have been given to us and this cannot be positively ruled out. Aneurysm of the splenic artery might be considered for a few of these cases have been described and the mass did seem to pulsate. However, an aneurysm in this location would in all probability rupture before it attained the size described, and this type of lesion is practically never diagnosed except at the time of rupture.

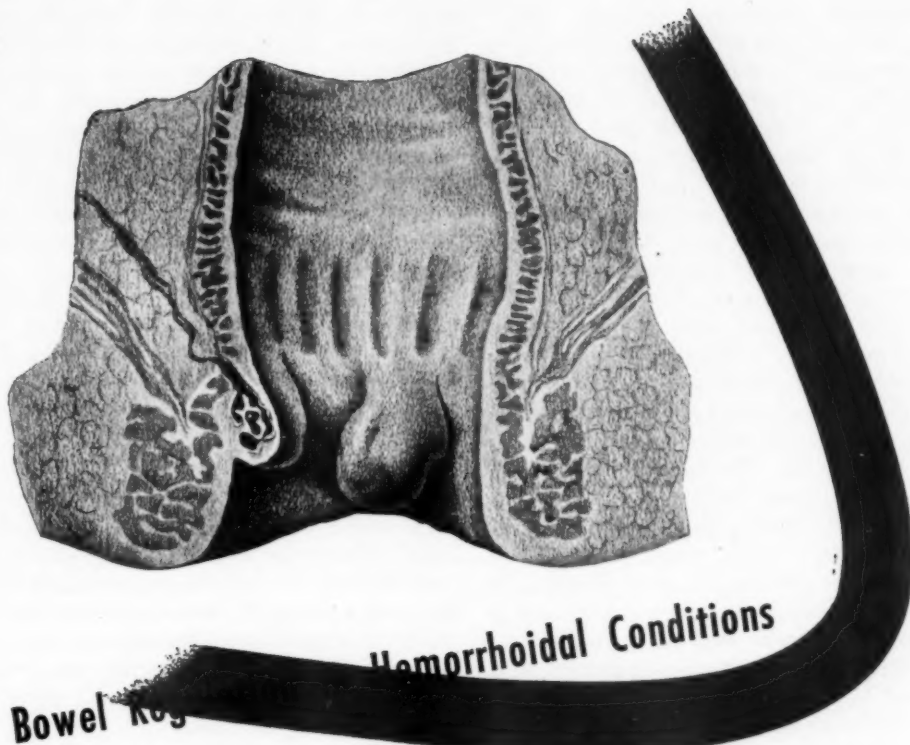
The more I went over the record, the more it seemed to fit with the diagnosis of pancreatic cyst. Tumors of the spleen, dissecting aneurysms, tumors of the intestine and lesions of the stomach might possibly be considered but the x-ray findings are such that it seems to me that all of these

conditions can be well ruled out without discussion.

Pancreatic cysts occur at any age but they are more often seen in persons about middle life. They may be seen in very young infants and in one series of cases which I studied the oldest was 76 years. There is a lack of knowledge concerning the pathogenesis of the various types of pancreatic tumors and for that reason there is a variance in the classification. Robson and Moynihan have grouped neoplasms as retention cysts, proliferative cysts including the cystic adenoma and cystic epithelioma, hydatid cysts, congenital cystic disease, hemorrhagic cysts and pseudo cysts. The pseudo-cyst is the most frequent type of pancreatic cyst and may occur in any portion of the pancreas although it is most prevalent in the tail. These so-called pseudo-cysts which represent fluid tumors found in more or less close proximity to the pancreas, but not originating in the substance of the gland, are most commonly the result of injury. In the particular case under discussion no history of injury is given.

The relationship between gall bladder disease and disease of the biliary system and the development of pancreatic disease has long been recognized. This particular patient did give a history of jaundice 30 years prior to the condition for which she was admitted to the hospital on this occasion. We are not given the x-ray findings of gall bladder and whether there is any etiologic relationship between the jaundice she had 30 years ago and the symptoms that she has now of course cannot be definitely established. I rather expect that at operation this woman was found to have evidence of gall bladder disease as well as the cyst of the pancreas. Most of the pancreatic cysts are benign but carcinoma may develop secondary to cystic degeneration.

The diagnosis of pancreatic tumor is extremely difficult, particularly when the tumor is small. The symptoms and signs are not in themselves significant or diagnostic. Laboratory tests may be of value but are by no means infallable. Pain seems to be the most important subjective symptom but it varies in location. In the majority of cases it is localized in the epigastrium, in some in the left upper quadrant of the abdomen and in some of the patients it is diffused throughout the abdomen. In many of the cases the pain is



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associated with nausea and vomiting. There may be loss of weight and there is constipation in some and diarrhea in others. Jaundice occurs in a relatively small percentage of the cases and is probably due to the fact that there is, rather commonly, an associated biliary system disease with the pancreatic disease.

Practically all patients operated on do give some past history which has a bearing on their illness. Most of these will give a history of transient attacks of pain which varies in duration from 2 days to 2-3 years. The average duration of symptoms however, is about 6 months. Some of the patients give a history of cholecystitis preceding the pancreatic cysts and many of the patients have noticed a gradual increase in swelling in the abdomen. The physical examination usually reveals these patients to be well-nourished, although a small percentage of the cases are emaciated.

Cysts of the pancreas are as a general rule relatively immobile, but if they are situated in the tail of the pancreas they are more apt to be freely moveable. Roentgen examination is of major aid in the diagnosis of cyst of the pancreas. When the cyst is situated in the head of the pancreas there is commonly an enlarged duodenal curve. Too, the displacement of the duodenum and the small intestine points toward the diagnosis of cyst of the pancreas. When in the tail of the pancreas the x-ray findings, as are given in the record of this case, are of great value in diagnosis. The picture after operation is characteristic. The tumor usually presents itself as a smooth, relatively immobile hemispheric and semi-fluctuant swelling. When it is aspirated it yields a rather sanguineous fluid and in some cases globules of oil can be found in the fluid. The size of the pancreatic tumor is quite variable. It may be 4-5 centimeters in diameter and can run up to 30 centimeters in diameter or more. It may be of such size that the tumor extends into the pelvis and contains several litres of fluid.

Cyst-adenoma represents a true form of pancreatic tumor but this type of neoplasm is not particularly common. It is characterized by papillary formation arising from the inner lining of the cyst. Retention cysts of the pancreas result, in all probability, from some form of obstruction to the pancreatic duct, while inclusion cysts develop in the pancreas from cells which are not normally there but which were incorpo-

rated in the organ from some extraneous tissue by a faulty development of embryonic life. Pseudo-cysts of the pancreas with carcinomatous degeneration are of rare occurrence. At the Mayo Clinic May Horner and Matson reported four cases of carcinomatous cysts among 8 patients with pancreatic cysts treated surgically. In another series of seventeen cases which I reviewed carcinomatous degeneration occurred in only one.

My diagnosis in this case is cyst of the tail of the pancreas. There may or may not have been carcinomatous degeneration, however I think that the chances are that the cyst was benign. I believe too that, if the gall bladder and bile ducts were examined at the time of surgery, gall bladder disease existed either with or without stones.

#### DIFFERENTIAL DIAGNOSIS

Dr. Merrill C. Sosman: I should like to have more details about the nodules found over the arms and thighs. How large were they? Were they freely movable? What was their distribution? Was there any pigmentation associated with them? I assume that they were neurofibromas.

Dr. Benjamin Castleman: There is no further information recorded. I should agree that they were probably neurofibromas.

Dr. Sosman: "The heart and lungs were normal". I assume that statement was based on the usual method of examination with the stethoscope, which is not reliable in spite of what one of your doctors said at one of the meetings several months ago. Since there are no x-ray films of the chest, we must accept the opinion, but not as a fact.

The serum amylase was 36 units per 100 cc. At the Peter Bent Brigham Hospital anything up to 100 units is normal. This was well below the border line of abnormality

Submitted with this protocol was this series of x-ray films. There are several facts that can be determined from the x-ray studies, and opinions can be deduced from these facts. I think that we should carefully separate the two. First there is a barium enema, then a small-bowel study, then intravenous urograms, finally, a gastrointestinal series. I was a little intrigued in going over these films to find that all of them have the same identifying number but one. I assume that you have a unit number for these patients, and I wonder if this film belongs to the group.



Dr. Dean Crystal: The patient was seen in the Out Patient Department and given a number, and was then transferred to the house and given another number before it was realized that she was the same patient.

Dr. Sosman: We can check that statement by observing the details of the spine—the intimate, personal private anatomic details. As a matter of fact, x-ray films are a good method of identifying persons during life and even after death, and they have frequently been used for that purpose. If one compares the transverse processes, the articular facets and the details of the fourth and fifth lumbar vertebrae in these films one finds that they are identical, so that the statement is correct.

The outline of the mass is best seen in this film of the kidney and bladder region, which preceded the intravenous urogram. There is a fairly sharply outlined mass in the left upper quadrant, which also shows well in the barium-enema film. The protocol states that the mass was irregular to palpation, whereas the shadow on the x-ray film is smooth and distinct in outline, making it look like a cystic mass. I agree, however, with the report that the first barium enema was normal. There is no evidence that the tumor arose from the colon. The stomach is displaced upward. There is a large vacant area here, which spreads the duodenal loop. It looks as if the mass had moved to the right side. I cannot tie that up with the examination when it was said that the mass was in the left upper quadrant. I should like to ask if the mass moved.

Dr. Laurence L. Robbins: Dr. H. P. Mueller, who did the fluoroscopy—in fact, I believe that he interpreted all the films—was certain that each time he examined the patient that mass was in a different part of the abdomen.

Dr. Sosman: So it was a freely movable mass, and I assume that the mass in the right upper quadrant below the antrum of the stomach, lying above the colon and distending the duodenal loop, is the same one that we saw in the left upper quadrant.

The intravenous urogram is essentially normal, except that the upper calyces of the left kidney are not well filled. There are two small areas of calcification that might be interpreted as the tips of these calyces since they are in proper relation to the outline of the kidney. As a matter of fact, the two shadows are present in the plain film

before the intravenous urogram was made. I assume that these two small calcified areas were in the mass and were not part of the kidney.

Finally the gastrointestinal series shows a well filled stomach, with normal mucosa and normal peristaltic waves, and a normal duodenal loop. I consider this jejunal loop to be abnormal. It is a little too large, and the rugae on the left side adjacent to the mass are not entirely distinct. Going back to the small bowel examination, I see a loop of small bowel that I think is larger than than one ordinarily sees.

To sum the whole thing up, the patient came in with a mass in the left upper quadrant, and after nine days of hospital study the diagnosis was still a mass in the left upper quadrant. I do not believe that there is any evidence here to indicate the exact origin of the mass. From these examination, however, we do know that it was not a part of the stomach and that it did not arise from the colon; if this dilated loop of small bowel means anything, it could have arisen from the wall of ileum. We have to consider, then, a tumor of the small bowel, a mesenteric cyst, a tumor of the left kidney (with no more distortion of the renal pelvis than we have here, it would probably have to be a large benign cyst), a cyst in the tail of the pancreas and, finally, an ovarian cyst with a long pedicle. These are the five major considerations. I believe that we can rule out the spleen because the tumor does not displace the colon in the usual manner. An enlarged spleen almost invariably displaces the splenic flexure downward and medially, where as here the mass lies medial to the splenic flexure. If it is spleen, it would have to be an aberrant spleen, and presumably a tumor of an aberrant spleen.

Going back to the small bowel and jejunum, there are four or five conditions that are commonly found there. One is reduplication, which almost always is found in children. I believe that it is quite rare to see it in a woman of fifty-nine. Then there are the sarcomas—leiomyosarcoma and spindle-cell tumors, but in such cases there is almost invariably a history of ulceration and hemorrhage. This patient had no anemia and no blood in the stools. The episode of weakness, fatigue and dyspnea could have indicated a massive gastrointestinal hemorrhage, but she failed to notice tarry stools. Lymphoma is frequently found in the small bowel, but that also is likely to cause hemorrhage, although not so

often as the spindle-cell sarcoma; furthermore, there is usually evidence of the disease elsewhere. Finally, we must consider a neurofibroma arising in the wall of the bowel or one of the nerves in the mesentery. She had subcutaneous neurofibromas, but I do not remember ever having seen a large neurofibroma in the abdomen. This is still a possibility in spite of that.

Mesenteric cysts are fairly rare. A cyst of unknown etiology with etiology with chylous fluid or serous fluid is occasionally seen. And there are the so-called "enteric cysts"; the pathologists give them this name but they are probably the same as the reduplications that they talk about at the Children's Hospital. There are also extremely rare nephrogenic cysts, which occur in the bowel remnants of the wolffian body, and a dermoid cyst, not associated with the ovary, is occasionally found. In fact, the two areas of calcification are suggestive of the latter.

I do not believe that it was a cyst of the pancreas because it was so freely movable and because of its location. It could have been a cyst of the ovary with a long pedicle, and that might account for the severe attack of pain in the back radiating upward, assuming that the previous ones that she had had many times were from the same cause. That would nicely explain the pains-torsion of an ovarian cyst with a long pedicle.

After looking over all these possibilities, I have no particular opinion concerning what it really was. I have ruled out a good many things, but there are still some even more remote possibilities, such as carcinoid of the small bowel or argentaffin tumors. These are found in association with multiple neurofibromas, but the carcinoid or argentaffin tumor is extremely small and rarely undergoes cystic degeneration; in all probability it can be ruled out. I have narrowed the field down to two main possibilities—ovarian cyst with a long pedicle and enteric cyst in the wall of the small bowel. Ovarian cyst must be considered, particularly because of the remarkable mobility of the mass. I believe that we can rule out cyst of the kidney. If this is the same tumor on the right, we can rule out cyst of the pancreas. I shall have to make a double-barreled diagnosis, so to speak, instead of pinning all my faith on a single one, that is, enteric cyst or ovarian cyst.

Dr. Robbins: We followed the same line of reasoning as Dr. Sosman. I do not believe that

we were impressed with the appearance of the jejunum. Dr. Mueller said that during fluoroscopy the jejunum appeared to be normal. I thought that it probably was a cyst in the gastrocolic ligament because of the way it so consistently maintained its relation to the colon and stomach.

#### CLINICAL DIAGNOSIS

Pancreatic cyst

Dr. Sosman's Diagnosis

Enteric or ovarian cyst.

#### ANATOMICAL DIAGNOSIS

Multilocular cystoma of pancreas.

#### PATHOLOGICAL DISCUSSION

Dr. Castleman: Dr. Crystal, will you tell us what you found at operation?

Dr. Crystal: We found a large tumor with a granular surface pushing the gastrocolic ligament forward. It proved to be a huge multilocular tumor of the neck of the pancreas, the portion that lies to the left of the notch for the mesenteric vessels. It could not be dissected free from the pancreas, and yet it appeared to be an encapsulated benign tumor. It was possible to transect the pancreas in two places, one just to the left of the uncinate notch and the other just to the left of the tumor, at a distance of about 5 cm., and to lift the tumor out, preserving intact the splenic vessels, which we did not have to tie. The question then rose whether or not we should remove the tail of the pancreas and the spleen along with the tumor. We elected to leave the pancreas and spleen; the latter was done because of our observation on several occasions that incidental removal of the spleen has been followed by thrombosis of the splenic vein.

The patient has done well. I do not know whether she will develop a pancreatic fistula. She has had fever every day, and I imagine that a fistula may eventually appear, possibly lasting for several months.

Dr. Castleman: The mass that we received was well encapsulated and quite nodular, but the nodules were smooth, not granular such as one may see in ovarian carcinoma. These nodular areas were translucent, pinkish and gelatinous, being quite similar in appearance to the thyroid tissue. A cross section of the tumor revealed varying sized multilocular cysts filled with viscid gelatinous semisolid material resembling colloid.

Histologically one section showed a bit of pancreatic tissue separated from the tumor by a thick capsule. The mass was made up of cysts of varying sizes, separated by fibrous connective tissue. The lining of these cysts was flat to low cuboidal epithelium, and occasionally there was a suggestion of papillary projections. This is the appearance that we have seen a number of times in so-called "cysts of the pancreas." I believe

that the lining is epithelial, although it is conceivable that it is endothelial, the tumor being a form of lymphangioma. Although they are often called "cystadenomas," I prefer the term "cystoma" because they really do not form glands. They are simply spaces with single layers of epithelium, occasionally high and with a papillary arrangement. There was no evidence of malignancy.

## TOPICS OF CURRENT MEDICAL INTEREST

### RX, DX, AND DRS.

By GUILLERMO OSLER, M.D.

A recent paragraph here about the **oral effectiveness of adrenal cortex substances** is still in press, but by now we have heard that such a preparation is available, that it works and that the cost has recently been cut by 50 per cent. . . . Our informant pushed a bottle across the desk and said "This is it—for now". Cortone (Cortisone) Acetate. A 25 mg. tablet is almost as effective by mouth as by injection. That amount is often enough for maintenance after the first effect is obtained.

The 'Medical Annals of the District of Columbia' is an excellent journal. It has numerous unique features. It has a page reserved for the president of its medical society, as do many other journals. This is usually filled with warnings, reflections, and diatribes. . . . In June of this year DR. WALTER FREEMAN also ENJOYED himself. As president he wrote an article called "Psychological Plagues", concerning The Master of Evil, and his three sons, Hurry, Flurry, and Worry. The unique part was that it was written in a dozen stanzas of FREE VERSE!

CHEST X-RAY CASE-FINDING in a large western city is now able to expect certain fairly regular results. About 22 of every 1,000 persons are referred to their physicians from the Retake Center. Four of them are suspected of heart disease; four of non-tuberculous lung disease; and 14 of tuberculosis. Of the 14, 11 will be found to have inactive disease, 2 will have disease of questionable significance, and 1 will have active disease. This equals 0.1 per cent of all surveyed—or potentially 3,000 in Los Angeles. . . . As the patients

themselves ask "Where they going to put 'em?"

Latin American politicians often have a Doctor's degree of some sort. The situation is rare in Estados Unidos, especially for an M.D. . . . Arizona once had a country physician in the top job when DR. MOEUR was Governor. He was frank, outspoken, non-political, and was re-elected once.

Most physicians who use AUREOMYCIN know that there are at least two ways to minimize the nausea which may occur. The ALUMINUM HYDROXIDE jells (gels) are of help, but they reduce the blood levels of aureomycin. MILK also decreases G-I irritation and vomiting, and has no effect on absorption of the drug.

Chloramphenicol (Chloromycetin) seems to be the answer to H. INFLUENZAE MENINGITIS. The mortality rate has previously been lowering, the other therapy has been tedious. The new drug, by mouth, clears the spinal fluid within 24 hours, and the mortality of Prather and Smith was zero.

TERRAMYCIN has joined aureomycin as a valuable aid in amebiasis. . . . The handling of terramycin research has been good, rapid, and modern. A recent symposium included the reports of 28 research teams, with the invaluable DR. CHESTER KEEFER as chairman. In addition to being a keen clinician, a fine teacher, and a versatile author, Dr. Keefer has played a wonderful part in correlating chemotherapy and antibiotic results. . . . The average physician can probably never thank him, so we hope that plenty of organizations do.

The little red pamphlet from THE HEMOPHILIA FOUNDATION, INC., has quite a few implications, most of them sad. . . . The pamphlet probably gets tossed out at once by most physicians; only the few with the disease, or who have patients with that malady, would need to use the services or think of contributing. The disease doesn't grossly deform, doesn't produce an infectious hazard, isn't as numerous or pathetic as most 'foundation' diseases . . . and how many physicians know that there is a therapy of sorts for it?

After following the progress of KHELLIN, and mentioning a trade prep. ('Visammin'), and then 'Eskel', we can now report a quick success with the latter. . . . Only two cases, true enough, but it allowed the withdrawal of numerous adrenal hypodermics and a nightly aminophyllin suppository. Nausea is rare if it is used only 2 or 3 times a day.

While speaking of devices and gobbledegook, we must not miss the wonderful series which is manufactured by a Chicago company—'Evaporometer', 'Aquatator', and 'Precision-Dow Dual Recordomatic Titrometer'.

The panel of speakers for the SOUTHWESTERN MEDICAL ASSOCIATION meeting in Phoenix (Oct. 26-28th) is, as our ten-year old says, 'hot and slick'. . . . Each of the speakers is about as well qualified to speak on his specialty as anyone in the U. S. All have written well on their subjects. . . . Some may find old friends in this area, but few will find more former colleagues and students than DR. JOE GALE of Wisconsin, who has known many Arizonans at St. Louis, Michigan, San Francisco and Wisconsin. . . . Incidentally, he is a Professor of Surgery, not Medicine.

A wonderfully unique and refreshing bulletin has been received from a colleague. It bears the date line of Galveston, Texas, July 1950, and the heading 'Post or Wastebasket As You Wish! Calling Attention To: Items of possible interest to friends of Chauncey D. Leake'. . . . Mimeographed on both sides of a single sheet of paper is a series of sentences (usually only one line long) which comment on or review medical articles, medical books, or an occasional non-medical publication. Many of these are obscure or of limited circulation. They all contain the brevity and wit and expressions of Dr. Leake, a famous pharmacologist, medical educator, historian, and author—and a fabulous reader, as one can plainly see.

The use of HEPARIN to prevent thrombosis and other potential coagulations once was more difficult than the use of dicumarol, even though the test

for the latter was more difficult and its effect was longer. . . . Heparin once had to be given by vein, and constantly; then it was given at intervals, and into the muscles; now it can be given every 12 hours by 'deposit'. . . . The fanciest and most fool-proof set-up is 'Depo-Heparin' (Upjohn). The package includes the drug; a disposable needle-and-ampoule device; a coagulation tube, with a cardboard holder for repeated tilting; and the usual instructions. . . . No technician is included, but one is hardly needed.

We will probably be hearing and seeing a lot about an antiseptic called 'Bactine'. It is made by the Miles Laboratory which does not spare the horses in favor of modesty. . . . It is said to be gentle, colorless, non-staining, odorless, deodorizing, anti-pruritic, antiseptic for hours, a detergent, cooling, anaesthetic, penetrating, and anti-fungal. . . . The chemistry is also a shotgun, since it contains Di-iso-butyl cresoxy ethoxy ethyl dimethyl benzyl ammonium chloride; Poly-ethylene glycol mono-iso-octyl phenyl ether; Propylene glycol; Chlorothymol; Alcohol; Camphor; Menthol; Essential oils and (of all things) water. . . . How can one be sure of the relative qualities of such a preparation is a problem not solved at the present time.

There must be some special sort of point in a recent item about PHYSICAL THERAPISTS. An Arizona chapter of American Association for Physical Therapy has been formed. . . . There are two members from Whipple, 13 from Phoenix, and 14 from Tucson. Probably the item could mean that when they are better organized they will have better national contacts, or that organization means the presence of qualified members (We can be sure, from the figures, that the origin of the society was in Tucson!).

A chronic vaginitis can be a stubborn lesion to cure. MONILIAL VAGINITIS is almost always tough. . . . GYN people say that the best therapy begins with a cleansing of the vagina and a pou-drage of the entire surface. . . . Powdering is not usually easy or convenient, but the advent of a "plastiflex" bottle has changed all that. . . . One company has put out 'Naprylate', a Council-accepted combination of sodium and zinc sales of caprylic acid, in powder form, in the plastic insufflators. We don't know about the therapeutic effects, but the convenience is wonderful.

#### NEWS ITEM

Dr. and Mrs. Kenneth C. Baker returned from Chicago where Dr. Baker attended the annual meeting of The American Academy of Dermatologists and Syphilologists which was held at the Palmer House December 2 to 9 inclusive.



## A HEALTH OFFICER LOOKS AT A MENTAL HYGIENE PROGRAM

By J. P. WARD, M.D., M.P.H.

Director Arizona State Department of Health

Presented to the

New Mexico Public Health Association

May 17, 1950

Dissatisfaction is the prelude to progress. Our grandmothers were happy if they had a cistern under the house and a pump directly over the kitchen sink. Today the modern housewife wants an automatic dish washing machine. This is good—it is progress.

As soon as a standard of living is shown to be possible, all people scramble to attain that standard. When the majority of us have attained such a standard of living, someone discovers an even better standard, and we all work to attain that. It is the constant striving for improvement that makes the impossible of yesterday the routine of today. So it is in public health.

A hundred years ago people knew that a large number of their babies would die long before they were able to walk. Every generation had seen sweeping epidemics that killed men, women, and children and wrought more havoc than wars. The sight of a baby choking to death with diphtheria was one of the perils of parenthood in the not too distant past. It was the anxiety of the people over the killing epidemic diseases that made them first willing to spend public money in an effort to improve health conditions. Public health was born as the result of epidemics of contagious diseases. The work of the public health people in their fight against germs has been so successful that man has now replaced germs as the principle destroyer of mankind. This means that public health workers, if we are to continue to protect our people's health, must focus more attention on the non-germ diseases.

This does not mean that we have finished our fight against the germs, nor does it mean that we should relax our defenses, but it does mean that we must take cognizance of an even greater menace to health and happiness. Public health workers have never been noted for evading a problem merely because of its difficulties. And we must not dodge our responsibilities in combatting conditions concomitant with our improved living standards. We must interest our-

selves in the general welfare of our people, the prevention of accidents, the prevention of deaths from cancer and heart disease. These and all other preventable human hazards, be they contagious or not, must be faced and fought by public health workers. The mental and emotional disease are a major health hazard and are largely caused by man's treatment of his fellow man. The size and nature of the problem of mental health makes it one of the most difficult challenges our profession has had to meet, but meet it we must as it is a health problem of public concern, and hence a public health problem.

Dr. Harry Mustard has said: "A health problem becomes a public health responsibility if or when it is of such character or extent as to be amendable to solution only through systematized social action." Certainly mental health is a public health responsibility according to this definition.

The prevention of the emotional disorders or the improvement of the emotional stability of all of us is such a large order that it cannot be done except through systematized social action if we are to accomplish any results. Dr. Mustard further says that the relative importance of the problem varies with the hazard to the population exposed. The population exposed to emotional disturbances is our entire race. The emotional disturbances do not cause as many deaths directly as do some other conditions, but when we consider the many deaths that may be caused indirectly by emotional imbalance, and when we consider the terrific drain on our economic and human resources, the problem of mental health does deserve a place of importance as a public health problem. It is both actual and potential. When we consider that half of our hospital beds today are occupied by sufferers from mental diseases, we can see that the actual problem is very large indeed. When we also consider the many borderline cases and the fact that all of us are to a more or less degree susceptible, the potential is

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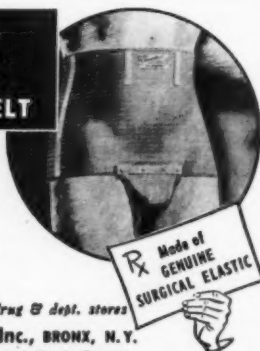
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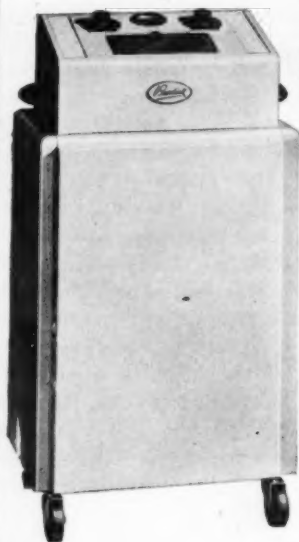
enormous. If, then, we are to accept Dr. Mustard's statement as to what constitutes a public health responsibility, we cannot ignore the fact that the emotional disturbances do come within our province.

Another reason that official health agencies should seriously consider the emotional disturbances, is the fact that they are probably the most expensive ailments of our society. Probably more official tax funds are spent as the result of emotional imbalance than for any other human ailments. The mere cost of incarceration of the inmates of our mental institutions in many states is the greatest tax expenditure for health services. An even greater cost of emotional maladjustment is the expense of maintaining the inmates of our penal institutions. Not only must we consider the expense of the upkeep of the inmates of these institutions, but also the results of the crimes for which they are incarcerated. A thorough study of case histories would probably reveal the fact that considerably more than half of the inmates of our mental hospitals, and 90% of those in our penal institutions are there because of some mental or emotional disturbance that could have been prevented had it been properly handled in its incipient stage. I do not believe it is possible for me to overemphasize the public health importance of these conditions. The fact that the people throughout the nation are rapidly becoming aware of the possibilities of preventing many of our emotional crises is evidenced by the fact that the principle theme of the Mid-Century White House Conference is The Mental, Emotional, and Spiritual Growth and Development of Children and Youth.

A public health conception of its responsibilities in mental health is nothing new. Some of the more progressive states and cities have been conducting child guidance clinics and other forms of mental hygiene programs for many years, but it has only been within the last few years when Federal funds were made available that the poorer states have been in a position to seriously consider such a program. Many of us health officers are somewhat nonplussed at this new program that has been thrown at us. Our first reaction may be one of resistance. We may feel that it is not fair to expect us to organize a program for a group of diseases with which we are unfamiliar, but when we recognize the importance of the problem and when we

further recognize the preventive possibilities we cannot escape the fact that it is our responsibility. But you may ask what can the health officer do for the mental diseases? Should he go back to school and study three or four more years to learn psychiatry? He knows nothing about the care, treatment, or even the diagnosis of mental diseases; how can he put on a program for their prevention? My answer to that is that the same technique that has been used so successfully for the improvement of our infant mortality, and our sanitation program should be tried in the mental health program. The same techniques that we use in the bettering of the conditions of pregnancy can be successfully used in the improvement of our mental health. The health officer is not an obstetrician. He does not deliver babies. What he does do is to make facilities available for the early care of the prenatal patient and teaches her to use these facilities. He teaches her not to put off a visit to her doctor or clinic until eclampsia develops but to seek help and advice early. This same technique has been successfully used in all of our public health programs, and I believe that it would prove successful in a campaign to improve our mental health. We can encourage communities to provide mental health facilities. We can teach our community leaders, our teachers, and our parents that emotional problems can be reduced. We can see that our people know the difference between ethical adequately trained personnel and quacks. We can teach them that it is no shame to be seen in a psychiatrist's office; we can teach them the fact that the psychiatrist is as much a friend as is any other doctor. We can educate people to seek the help of a competent psychiatrist early in emotional upsets and not to wait until such time as a tragedy develops.

We have in our group of medical and allied professions certain specialists who are trained in the treatment of this vast group of mental diseases. We health officers on the other hand are trained in the prevention of all types of human ailments. It was inevitable then that eventually the paths of these two specialists would merge. The surprising thing to me is not that the people working in the field of mental hygiene and the people working in the field of public health have at last discovered the fact that they have much in common, but the surprising thing is that this fact was not more fully



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recognized years ago. It is nothing new for health officers to become interested in certain specialized fields and interest other specialists in the field of prevention of illness. A hundred years ago the doctor could not see where his training had anything to do with that of the engineer, and yet the health officer has brought the two professions together in public health, and the engineer of today is responsible for much of our improved mortality conditions. Certainly when Florence Nightingale started the profession of nursing she was thinking in terms of training young ladies to care for the sick. That is still the primary goal of all nursing training schools, but it was the health officer who saw that he could take these women and train them in the even more important field of preventing illness in the first place. As a result we have our public health nurses who are the very backbone of any public health program. The health officer himself must be a jack-of-all-trades; he must depend on others on his staff, or on consultation available to him for various specialized knowledges. The health officer must be the administrator and coordinator—not a specialist in all fields. We have tuberculosis specialists who have had public health training to direct the program against tuberculosis. We have public health nurses who have had additional experience in tuberculosis to act as consultants to the public health nurses in the fields. The same thing applies to our venereal disease program, our maternal and child hygiene program, and it will have to apply to our mental hygiene program. The health officer will not be expected to substitute as a psychiatrist, but he will have to have available either on his staff or as a consultant, a psychiatrist, a psychologist, and psychiatric social worker, and nurses with particular training in psychiatric problems. The job of these consultants will not be to treat sick people any more than the job of the director of maternal and child hygiene is to treat sick mothers or infants. Their job will be to give in-service training programs to the public health nurses and health officers so that they in turn can know a little more about the basic causes of emotional disturbances and can practice a little better mental hygiene techniques in their every day dealings with their clients. They will also provide health education in their specialized fields.

The effect of emotional disturbances on physi-

cal health is very well brought out by an experience of Dr. Henry Schumacher's in his young days as a resident physician in a hospital ward caring for the babies of unwed mothers. It illustrates what we health officers would call an epidemic. In this hospital it was the practice to take the babies away from the mothers immediately after they were born and put them in this isolated section of the hospital where they did not allow the young student nurses to take care of them (it was thought that the contact with illegitimate babies would be bad for the student nurses' morals). These babies were cared for by a very inadequate staff of aged spinsters who fed them from bottles and gave them a minimum of handling. Their illness rate and their death rate were terrific. In an attempt to reduce their mortality rate it was decided to try feeding the babies on acidolphus milk, but as you all know the acidolphus milk is very thick and does not run freely through the ordinary nipple. This feeding process took so much time that it was necessary to change the hospital rules and have the young student nurses come over and take care of the feeding, in spite of the moral danger to the nurses. The babies immediately began to gain weight and exhibited a very marked decline in the mortality rate. At first, of course, this was attributed to the acidolphus milk, but later when regular formulas were reinstated but feeding was continued by the student nurses who took time to give them a little affection along with their nursing, it was found that the children continued to do so well as on the acidolphus milk. It was rather dramatically demonstrated that the marked improvement in their health conditions was due merely to the love and affection and fondling that they had previously been deprived of. The modern health officer is not likely to have the opportunity of observing such an epidemic, but he and certainly the public health nurses will see many isolated cases of infants failing to gain weight and develop normally as a result of the lack of mother love to which every infant is entitled.

We have all seen the cases of the delinquent adolescents who were sent to the reform school because they refused to conform to our social standards. But have enough of us so-called experts in epidemiology and prevention taken the time to determine the cause of their anti-social behavior, or concerned ourselves with the even-

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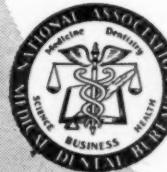
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tual outcome? I tell you fellow public health workers that those youngsters have a preventable disease! Except for the feeble-minded and organically diseased most of the mental illnesses are preventable and it is certainly our job as experts in the field of prevention to take the lead in this program of preventing them.

We must take the lead because we are expected to be leaders in our communities. This is a program that our people want, and if we don't assume the leadership other groups less qualified will. We have the contact with all ages, and especially with the very young. We have the confidence of the people, and we have the "know how." What better place could anyone look for to start teaching the basic fundamentals of emotional stability than with prenatal classes? It is important for health officers and nurses to teach their prenatal patients that certain of their fears and emotions during the state of pregnancy are to be expected, but the public health worker should do everything possible to reduce these emotional upsets due to pregnancy. This is also the best time in the world to instruct the future mother in the importance of early care for the emotional needs of her infant. We take advantage of this time to instruct her in the care of the future child's physical well-being, but we should also take advantage of this entree to teach her the importance of the early days of life in the molding of the child's emotional stability. We also see these children together with their mothers at our infant and preschool conferences, we also see them in the schools, and public health workers should be among the first to recognize poor emotional treatment of children and infants. We take advantage of our contact with this group to try to prevent smallpox, diphtheria, typhoid, the enteric diseases, influenza and everything else, and it is only right that we take advantage of our contact with this group to prevent the emotional disorders also. But not only is it important that we prevent mental illness; it is also important that we promote a positive emotional health. Certainly there is much to be desired in the emotional stability of all of us, and anything we can do to improve it in future generations will undoubtedly be to our credit when that Great Bookkeeper audits our final account.

A mental health program will not be a sensational one. We will not expect to show outstanding results immediately. A mental health

program should not be likened to immunization for smallpox which can be completed today, and epidemics stopped tomorrow. It will probably be more like our educational system where the child is sent to school today, but the community does not begin to reap the benefits of its expenditure on his education until 12 to 16 years later. The fact that we cannot expect to see final results should not lessen our enthusiasm.

But not only can, and should, the health officer contribute what he can to the mental hygiene program, he should also use the people trained in mental hygiene to help him in the program that he now operates. We all know, for example, that if we could change certain mental attitudes we could materially reduce our venereal disease rate, not only by making promiscuity less prevalent; but also by the proper use of mental hygiene methods we could undoubtedly get more infected people under treatment and keep them under treatment until they were cured. This of course works both ways: while we need the help of the people trying to combat the mental illnesses to help us in our VD treatment program, our VD treatment program certainly helps in reducing the number of mental defectives resulting from syphilis.

How about tuberculosis? We know that the emotional shock to the patient of discovering that he has tuberculosis is a severe one. It is as much our business to combat this emotional shock as it is to treat the tuberculosis itself. If we can improve our techniques so that we can make our TB patients take a more rational view of their illness we can secure their cooperation much better in the treating of the individual case and also in the prevention of future cases. We all know that it is an expensive process to hospitalize an active case of tuberculosis only to have him dissatisfied with his hospitalization and leave against medical advice after only a few weeks or months of treatment. The reasons for patients leaving tuberculosis hospitals against advice are nearly all emotional, and it is our job to meet those emotional crises as well as to treat the tuberculosis itself. Why is it, for example, that the tuberculosis rate in mental institutions is always very high? Is it altogether due to the fact that most mental institutions are crowded and offer close contacts, and therefore facilitate the spread of tuberculosis, or is it not also possible that the diagnosis of tuberculosis proved the disorganizing blow to emotion-

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ally unstable personalities. I don't know the answer to that question but it is certainly an interesting one for some research.

Certainly the mental attitude of a crippled child who is not able to run and play with his fellows deserves special attention and special consideration. His mental attitude as well as his crippling condition must be intelligently treated if we are to make him into the useful citizen that we expect him to be. So not only can we public health people make a contribution to the mental health program, but the mental health people can make a definite contribution to our existing program.

Mental health is a public health responsibility. The public health people and the mental hygiene people have much in common, and it is fortunate that they are at last beginning to see where their interests merge. Because of the more diversified training and the wide scope of their

vision, it is up to the health officer and the public health worker to go more than half way in encouraging the mental hygiene specialists to join forces with us. We public health people must realize that they have much to offer in making our communities healthier, wealthier, and happier, and we must make them realize that we welcome their help toward accomplishing the purposes for which we have always worked and shall always continue to work. Being aware of the fact that their talents can and should be used in the field of public health. And being aware of the fact that my training in public health will allow me to assist them in accomplishing their program, I say to them, "Welcome to the field of public health." I firmly believe that our two specialties working together as one can contribute more to the health and happiness of our people than either of us could working separately.

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## PERSONAL NOTES

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*Dr. Carlos C. Craig*, Phoenix, attended the Dallas Clinical Club annual meeting, in Dallas, Texas October 9-11th.

The October Staff meeting at St. Joseph's Hospital, was held October 6th and *Dr. Thomas Bate*, Phoenix, spoke on "Hemangioma of the Tendon Sheaths."

*Dr. O. O. Williams*, Phoenix, attended the annual meeting of the American Society of Clinical Pathologists, Chicago, Illinois October 16-21. *Drs. Ralph H. Fuller*, and *George O. Hartman*, Tucson, also attended this conference. *Dr. Geo. O. Hartman*, of Tucson, also attended the meeting of the American Association of Blood Banks just preceding the above meeting in Chicago.

*Dr. Chas. W. Sult, Jr.*, formerly of Phoenix, has established offices for the practice of Neurology and Psychiatry at La Jolla, California.

The October meeting of the Staff of St. Monica's Hospital, Phoenix, was addressed by *Drs. W. A. Brewer*, *Otto L. Bendheim*, and *Raymond J. Jennett*, all of Phoenix. Two unusual chest injuries were discussed by *Dr. Brewer*, while *Dr. Bendheim*, spoke on the "Phantom Limb Syndrome". *Dr. Jennett*, presented a case of "Abdominal Pregnancy Delivered by Caesarean Section."

*Dr. Frank J. Milloy, Jr.*, Phoenix, interrupted his four year surgical residency at the Cook

County Hospital, Chicago, Illinois, to go on active duty with the U. S. Navy. He has left for the Phillipine Islands.

The October meeting of the Staff at Good Samaritan Hospital, Phoenix, Arizona was addressed by *Dr. John Eisenbeiss*, Phoenix, who presented a case of "Rabies". *Dr. Wm. F. Schroeder*, Phoenix, gave a monograph on "Congenital Atresia of the Intestines", and presented a case.

*Drs. Michael J. O'Connor* and *Joseph M. Kinade*, of Tucson, and *Drs. David E. Brinkerhoff*, *Paul H. Case*, *Archie E. Cruthirds*, and *Clarence C. Piepergerdes*, all of Phoenix, attended the meeting in Chicago, Illinois, October 6-12, of the American Academy of Ophthalmology and Otolaryngology.

*Dr. Louis B. Claypool*, Phoenix, is going on active duty with the U. S. Army, January 2nd at Williams Field, Arizona.

*Dr. Geo. E. Randall*, Phoenix will not go on active duty having been given an indefinite deferment. *Dr. Randall* served nearly three and one half years overseas in World War II with the U. S. Army and is a member of the Organized Reserve.

*Dr. James L. Riordan*, has taken over the head of the X-ray Department at St. Joseph's Hospital, Phoenix.

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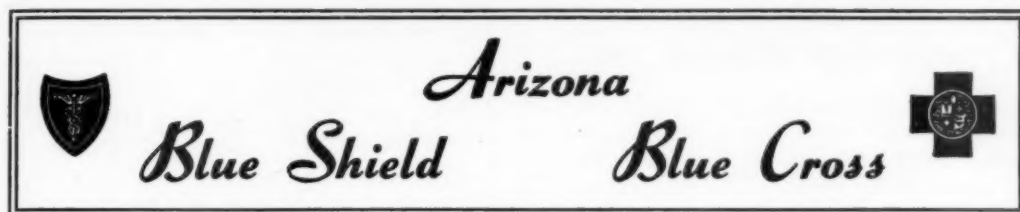
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## TAKING STOCK

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Peculiar as it may be, identical words in the English language take on different meanings or thought patterns to different people in different parts of the country. For example, "taking stock" to a merchant means, perhaps, an accounting of his inventory; to a rancher, an appraisal of his grazing land and the size and breeding of his cattle; to a banker, a balance sheet of assets and liabilities, or perhaps an investment in some company. To the doctor, however, "taking stock" should, at this time, not only mean a periodic re-examination of his talents, knowledge, and adherence to the faithful administration of his calling, but further, a sane evaluation of the supporting forces in his campaign to keep medicine free from political contamination.

One of the strongest, nation-wide influences of public acceptance to "the voluntary way" is the physicians' and hospitals' very own plans—Blue Shield and Blue Cross—in which they are already in collective partnership with the American people. This fact is substantiated by current Blue Shield and Blue Cross enrollment figures, which appear to belie the arguments of the proponents of national compulsory health insurance that Blue Shield and Blue Cross are not doing an adequate job of coverage of the populace.

The latest report published by the Blue Shield National Commission, covering all plans for the first quarter period of 1950, shows a total membership on March 31st of 13,276,597 as compared with 12,300,725 as of January 1st, or an increase in membership of 975,872 during the first three months of 1950. The mid-year report has not yet been published. The Blue Cross Commission report for the first half of 1950

shows a total membership on June 30th, of 38,585,953 as compared with 35,918,705 on January 1st, or an increase in membership of 2,667,248 during the first six months of 1950.

This steady, increasing acceptance on the part of a nation-wide public is reflected also in Arizona Blue Shield and Blue Cross figures. Enrollment in Arizona Blue Shield for the same period shows a total of 60,092 on June 30th, as compared with 51,837 as of January 1st, or a gain of 8,255 for the first six months of 1950. Blue Cross shows a smaller but nevertheless consistent gain of 5,302 memberships for the same period. Arizona Blue Cross enrollment stood at 115,134 on June 30th, as compared to 109,832 as of January 1st.

This definitely indicates a trend on the part of the American public toward an innate desire to obtain an "anchor to windward" against possible future hospitalization and/or surgical needs. Since most people cannot save much from their paychecks these days because of the ever-increasing cost of living, taxes, etc., they seek the best, most economical way—through prepayment.

To continue this enrollment graph on its upward climb, however, requires an equally increasing cooperation and support of the medical profession and the hospitals to help foster the acceptance and use (not abuse), on the part of their patients, of Blue Shield and Blue Cross.

These two plans, which after all are the hospitals' and doctors' own plans, should eventually cover the eligible population of the United States in sufficient numbers and in a large enough percentage as to automatically silence the guns of those who are presently plotting to "socialize" America.

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## BOOK REVIEWS

**NEW AND NONOFFICIAL REMEDIES**—Containing Descriptions of the Articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1950. Issued under the direction and supervision of the Council of Pharmacy and Chemistry, American Medical Association. Cloth. Pp. 800. J. B. Lippincott Company, Philadelphia, London, Montreal, 1950.

This is the most recent annual publication of this volume which should be well-known to all medical people. It discusses the composition, rules and general activities of the Council. It describes those remedies which have been accepted by the Council (articles which have been official for 20 years are usually then omitted.) It describes tests and standards for nonofficial products. It lists products that are no longer accepted.

It is, therefore, a valuable reference book for the medical profession.

**ANNUAL REPRINT OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION.** With the Comments That Have Appeared in the Journal of the American Medical Association. Cloth. Pp. 231. J. B. Lippincott Company, Philadelphia, London, Montreal, 1949.

Throughout the year, the Journal of the American Medical Association publishes reports of the Council on Pharmacy and Chemistry of the Association. These reports are special articles on many subjects pertaining to drug therapy, such as, Prescription Writing, The Costs of Drugs, New Special Groups of Drugs, and many others.

The present volume is a collection of all the reports thus made to the membership of the Association by the Council.

All physicians will find some of these reports valuable reading.

**UROLOGICAL SURGERY.** By Austin Ingram Dodson, M.D., F.A.C.S. The C. V. Mosby Co. St. Louis, 1950. Second Edition. Cloth \$13.50. 855 pages, 645 illustrations.

The second edition of the surgical atlas has a number of improvements over the first edition; namely, improving the chapter on pre and post-operative care; reducing the stress laid on renal ptosis; including a section on retropubic surgery; and, improving the section on anesthesia. The present edition is a valuable addition to any surgeon's library since it presents in compact form the various procedures available for any urologic problem. The first section gives a very brief surgical anatomical review but fails as do all brief reviews by its brevity. Either it should be thoroughly detailed, or completely deleted, since in its present form it is useless as a real reference to anatomic structure. The

chapter on urography is excellent because of the choice of illustrations in that it serves to refresh the memory, but actually does not belong in a book on surgical procedure. The chapters on pre and postoperative care, acid-base balance and fluid administration, blood transfusion and shock are excellent and to the point.

These should actually be the first chapters in the book, and should be read and reread by every surgeon attempting to work on the debilitated and aged patient with failing renal function, as are so many of the urologic patients. As H. H. Young states: "the surgical procedure should be but an incident in the treatment of the patient." These chapters increase considerably the value of the book over other purely surgical atlases.

The following chapters recount in detail and with good illustrations the routine procedures for the various urologic cases, beginning with renal surgery and down through the bladder and scrotal surgery. The chapter on procedures on the female urethra could be more elaborate since more and more urologic rather than gynecologic surgeons treat these afflictions, including physical therapy of incontinence.

There is a very good chapter on the treatment of the neurogenic bladder, both surgical and physical, with good diagrams of bladder irrigation equipment.

As the author states this is not an encyclopedic volume of all developed surgical procedures or their various modifications and improvements, but only of those procedures which have been tried over the years and have been proved to produce the required result when performed carefully and capably. This new edition is a book well worth having at the surgeons' fingertips.

Paul Singer, M.D., F.A.C.S.,  
Phoenix, Arizona

**EYES AND INDUSTRY.** Second Edition. By Hedwig S. Kuhn, M.D. Price \$8.50. Pp. 328 with 151 text illustrations, including 3 color plates. The C. V. Mosby, Co., Publishers. St. Louis, Missouri, 1950.

This book is intended for those interested in Industrial Ophthalmology. Included is the setting up of an eye program which has its inception in the pre-employment tests; the fitting of the eyes to the job, which is admirably brought out whether for distance or close work; and, of course, stereopsis; muscle balance; and color tests. With the high speed and precision instruments of today's industry this is indeed timely. Visual skill in the ability to produce

and the lack of it as a hazard are brought out repeatedly.

First aid instructions to employees, nurses and doctors in the care of eye injuries such as foreign bodies, flash burns, etc., are thoroughly set forth and may be considered as standards.

The 'Eye Protection' chapter illustrates every conceivable goggle, their adaptability and usefulness in many jobs, and how to set up a goggle program in a plant and keep it going.

The chapter devoted to the importance of proper illumination in our daily work contains very useful suggestions.

For the ophthalmologist the chapter on Blindness may help to set up a program on rehabilitation, if interested.

This book can be highly recommended for every library of any size especially where industrial medicine is practiced.

H. J. French, M.D.  
Phoenix, Arizona

### A.M.A. THANKS H.B.A. FOR ALL-OUT SUPPORT

Clem Whitaker, director, National Education Campaign, American Medical Association, in a letter to George E. Richardson, director, Hospital Benefit Association, thanked the H.B.A. for its splendid support during the recent A.M.A. advertising campaign. Here are three paragraphs of Mr. Whitaker's letter:

"This is to say a very hearty "thank you" for the all-out support of the Hospital Benefit Association during American medicine's freedom advertising campaign.

"We were very appreciative of your action in advising us of this splendid tie-in cooperation, and it will be called to the attention of the Board of Trustees of the American Medical Association at its next meeting.

"You will be interested to know that throughout the country approximately 50,000 firms ran tie-in advertising in support of this campaign, at least equalling and perhaps doubling A.M.A.'s advertising expenditure."

The Hospital Benefit Association ran special newspaper advertisements in both papers in Phoenix (*The Arizona Republic*, *The Phoenix Gazette*) and in both papers in Tucson (*The Arizona Daily Star*, *Tucson Daily Citizen*) on October 11th. And during the last three weeks of October, the H.B.A. ran a cut of The Voluntary

Way Is the American Way in its regular newspaper ads in several Arizona cities.

All the H.B.A. radio-show commercials, too, were built around the A.M.A. theme The Voluntary Way . . . The Arizona Broadcasting Company—KTAR, KYCA, KYUM and KVOA—and station KOOL carried A.M.A.'s message to the people of Arizona. Stations KPHO, KIFN, KRUX, KTYL, KTUC and KNOG did the same job for the American Medical Association, through spot announcements.

The *Hospital Benefit Bulletin*, a publication to H.B.A.'s 20,000 members carried a lead story about The Voluntary Way Is the American Way . . . along with small A.M.A. tie-in mats.

While the socializers of America are making bitter attacks against the A.M.A.'s recent campaign, it is nice to know that there are so many firms and organizations willing to speak out and help reaffirm and solidify the public's faith in American medicine.



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### ATOM BOMB DISCUSSED AT MARICOPA AUXILIARY MEETING

The Woman's Auxiliary to the Maricopa County Medical Society held its monthly meeting in the Nurses' Lounge at Good Samaritan Hospital on November 6th. Mrs. Karl Harris presided at the business session.

The guest speakers were introduced by the Social Chairman, Mrs. Robert Cummings. The topic for discussion was The Atom Bomb. Doctor Donald Polson gave a brief description of the physics and mechanics of the bomb and an explanation of its destructive powers. He described the three phases of destruction as they affect humans i. e. explosion, burning, and radiation.

Doctor Polson was followed by Mr. Frank Williams, director of the Division of Health Education for the State Department of Public Health, who presented Arizona's plan to care for evacuees in the event that a bombing should occur in one of the critical areas on the west coast.

Mr. Williams showed the restricted Navy film "Operations Crossroads" taken during the test explosions at Bikini.

After the meeting adjourned, the doctors joined their wives for the social hour. Refreshments were served by Mrs. Clark McVay and her committee.

Respectfully submitted,  
Mrs. John Eisenbeiss  
Phoenix

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### LEGISLATION

The Woman's Auxiliary to the Arizona Medical Association can be a strong force in helping to promote wise and adequate health legislation. It can be equally effective in defeating legislation that is detrimental to the public welfare. This, however, can be accomplished only if its legislative committees are well organized and actively operating on a state and county basis.

Your legislative chairman has outlined a program that will dovetail with that of our Medical Society. This program was approved by the Chairman of the legislative committee of the Arizona Medical Society. It will fall roughly into two classifications.

1. The A.M.A. National Education Campaign.

- a. Promoting voluntary health insurance.
- b. Defeating compulsory health insurance.
- c. Defeating "fringe bills".
2. General Legislation on Health and Related Matters.
  - a. Basic Science Laws
  - b. Public Health Measures
  - c. Hospital Construction Bills
  - d. Measures relating to Medical Education.

The function of the legislative committee, through its local chairman will be as follows:

1. To inform the entire Auxiliary membership as to the pros and cons of pending bills and the necessity for legislation to correct given health problems. This educational process can best be carried out by having the legislative chairman or one of the members lead discussions dealing with the subjects. National has suggested that the program chairman allow at least ten minutes on every county program for the legislative chairman or her committee to tell of the latest developments in Washington or on the state or local level. From time to time during the year your state legislative chairman will provide pertinent literature for the auxiliary members.
2. Activate all Auxiliary members to promote or oppose vigorously health legislation as the occasion demands. This program will include:
  - a. Letter writing to Congressmen, Senators and State Legislature.
  - b. Distribution of informative material on particular health legislation to the public.
  - c. Assistance to the Medical Society's legislative committee in any way they may request.
3. Offer consultant service to other organizations on health legislation. This can be done by the local chairmen building a file with the material emanating from the Washington office of the A.M.A. This will be augmented by the state legislative chairman on the state level. The availability of this file is to be made known to the various women's organizations in the community.

The success of this program is based on the individual auxiliary members interest, responsibility and cooperation. During these troubled times of pressure legislation it is important that

we, too, make our wishes known to our representatives.

Respectfully submitted,  
Mrs. Louis Hirsch  
(Legislation Chr.), Tucson

## PIMA NEWS

### MRS. ROY HEWITT HOSTESS TO GROUP OF MEDICAL WIVES

Woman's auxiliary to the Pima County Medical Association held the first general meeting of the year at the Pioneer Hotel ballroom Tuesday evening. Fifty members were present.

Preceding the general meeting, Mrs. Roy Hewitt entertained board members at a buffet luncheon. Mrs. Hewitt presided and introduced new board members: Mrs. Brick Storts, president-elect; Mrs. Leo Kent, first vice-president and membership chairman; Mrs. Richard Hausmann, second vice-president and program chairman; Mrs. Darwin Newbauer, recording secretary; Mrs. Kenneth Baker, treasurer; Mrs. David Engle, corresponding secretary.

Mrs. J. K. Bennett, public relations; Mrs. Blair Saylor, health chairman; Mrs. Jackman Pyre, today's health; Mrs. Clyde Flood, publicity; Mrs. Hugh Thompson, legislation; Mrs. Stanley Kitt, bulletin; Mrs. B. B. Edwards, philanthropic chairman.

At the general meeting reports of officers and standing committees were given outlining plans for the year. One of the principal projects of the State Medical Auxiliary is the Nurses Loan Fund which is supported by all county auxiliaries. Mrs. Max Costin, Tucson, member of the state committee, announced that two girls are now in training under the fund, one from Tucson and one from Phoenix. Mrs. Kenneth Baker, captains 20 auxiliary members who are soliciting doctors and employees for the Community Chest drive. The organization voted to provide toys and books for the Crippled Children's Ward at the County Hospital throughout the year.

Mrs. Royal Rudolph, president-elect to the state auxiliary gave a talk on the aims and purpose of the Medical Auxiliary. Mrs. Hiram Cochran spoke on the National Auxiliary Convention held in San Francisco in June where delegates were urged to stress greater participation of members in PTAs, Women's Clubs, Civic activities and nurse recruitment.



### ORDER YOUR BULLETIN

Although most of you are familiar with the Woman's Auxiliary to the American Medical Association's official publication, the Bulletin, repetition is often valuable.

As members of the Auxiliary, we have a duty to ourselves and to the organization to subscribe to its magazine. The material in the Bulletin is selected by the Publications Committee with the idea of giving to the members of the Woman's Auxiliary information and suggestions that will be of interest and help to them in their Auxiliary activities. It helps them to answer questions that the general public are interested in. As wives of physicians, it is our duty to be informed of the activities and policies of the medical profession. Every physician's wife should subscribe to and read the Bulletin to keep informed and up to date on Auxiliary and American Medical Association affairs.

Order your Bulletin as soon as possible from your County Bulletin Chairman so that you do not miss a single one of these vital issues. If you are a member-at-large, you can place your order directly with the State Publications Chairman, Mrs. Joseph C. Ehrlich, 310 West Granada Road, Phoenix, Arizona. The subscription must be prepaid and is One Dollar for four issues, published quarterly.

We need your cooperation.

Mrs. Joseph C. Ehrlich  
State Bulletin Chairman Phoenix

### SOUTHWESTERN MEDICAL ASSOCIATION

The Southwestern Medical Association met in Phoenix, October 26th, 27th and 28th. The Maricopa County Women's Auxiliary were hostesses to the wives of the visiting doctors and a complete round of social activity was planned under the leadership of Mrs. Robert Cummings.

Mrs. Preston Brown and her committee were stationed at the Westward Ho Hotel to greet and register the visitors.

A tea, at the home of Mrs. Thomas W. Woodman, was held Thursday afternoon under the chairmanship of Mrs. John R. Green. The tea table was graced by a floral arrangement of blue delphinium and pink roses in a silver bowl and gray iridescent candles in silver candelabra complimented the arrangement. Presiding at the table were Mrs. Joseph Madison Greer, Mrs. Henry Williams, Mrs. Dudley Fournier and Mrs.

Reed Shupe. Mrs. Woodman, Mrs. Carlos Craig and Mrs. Karl Harris, Maricopa County President, greeted the guests upon their arrival. Notable among the guests were Mrs. M. M. Win-trobe of Utah and Mrs. Salvadore Zubiran of Mexico City, wives of doctors on the speakers panel.

That evening Bud Brown's Barn was the scene of a barbecue dinner and dance. An evening of informal gaiety in good Western fashion was enjoyed by all who attended.

Mrs. Charles Van Epps and her committee arranged a brunch Friday morning at the Arizona Country Club after which the guests were invited to stay for cards.

The final event, the annual dinner dance, was held at Camelback Inn. The Society and the Auxiliary were hosts and hostesses at a cocktail party held in the lounge after which a sumptuous buffet dinner was served. The guests of honor, seated at a U shaped table in the dining room, were introduced by Dr. I. J. Marshall, President of the Southwestern Medical Association. The panel of speakers were presented with hand tooled leather silver buckled belts in token of appreciation for their contribution to the scientific sessions. Dancing followed the dinner.

Thanks to Mrs. M. W. Merrill for providing transportation; to Mrs. L. L. Tuveson, custodian of funds, and to Miss Alma Alkire, Assistant Secretary of the Maricopa County Medical Association, and a staff from the Junior Chamber of Commerce for registering the doctors.

Mrs. Robert Cummings  
General Chairman  
Phoenix

### GILA COUNTY MEDICAL AUXILIARY NEWS

Tentative plans are being made for a dinner meeting to be held at the Cobre Valle Country Club.

Mrs. A. J. Bosse, County President, gave birth to a baby girl on October 20th.

Mrs. Wm. Bishop, Secretary-Treasurer, had a baby girl in September. Seems the stork is still hovering over Gila County Auxiliary members and the birth rate will be increased by two in the near future.

Dr. and Mrs. Cyril Cron spent six weeks vacation in Mexico going as far south as the Isthmus of Tehuantepec. They went down over the new highway from El Paso and Juarez.

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